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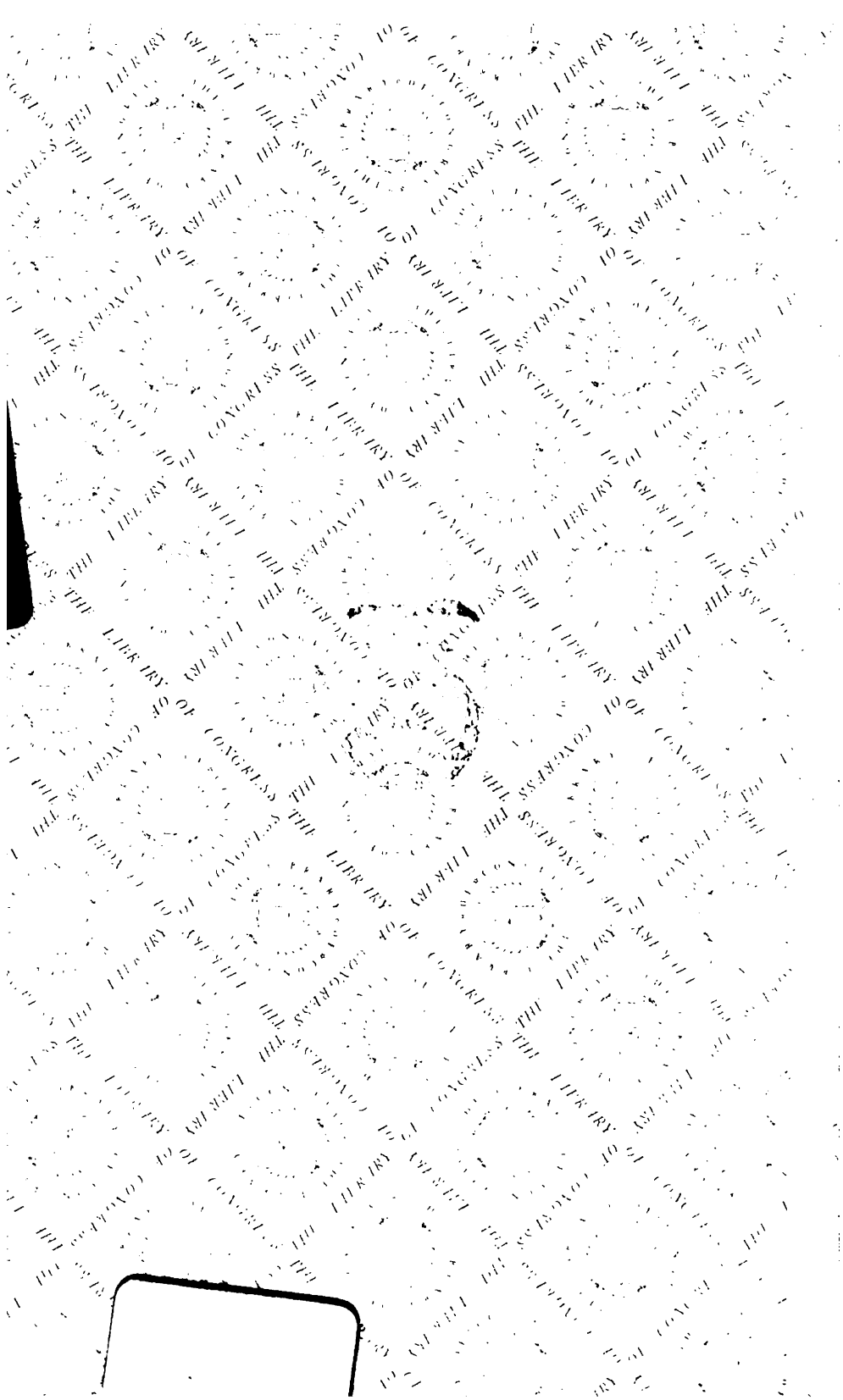
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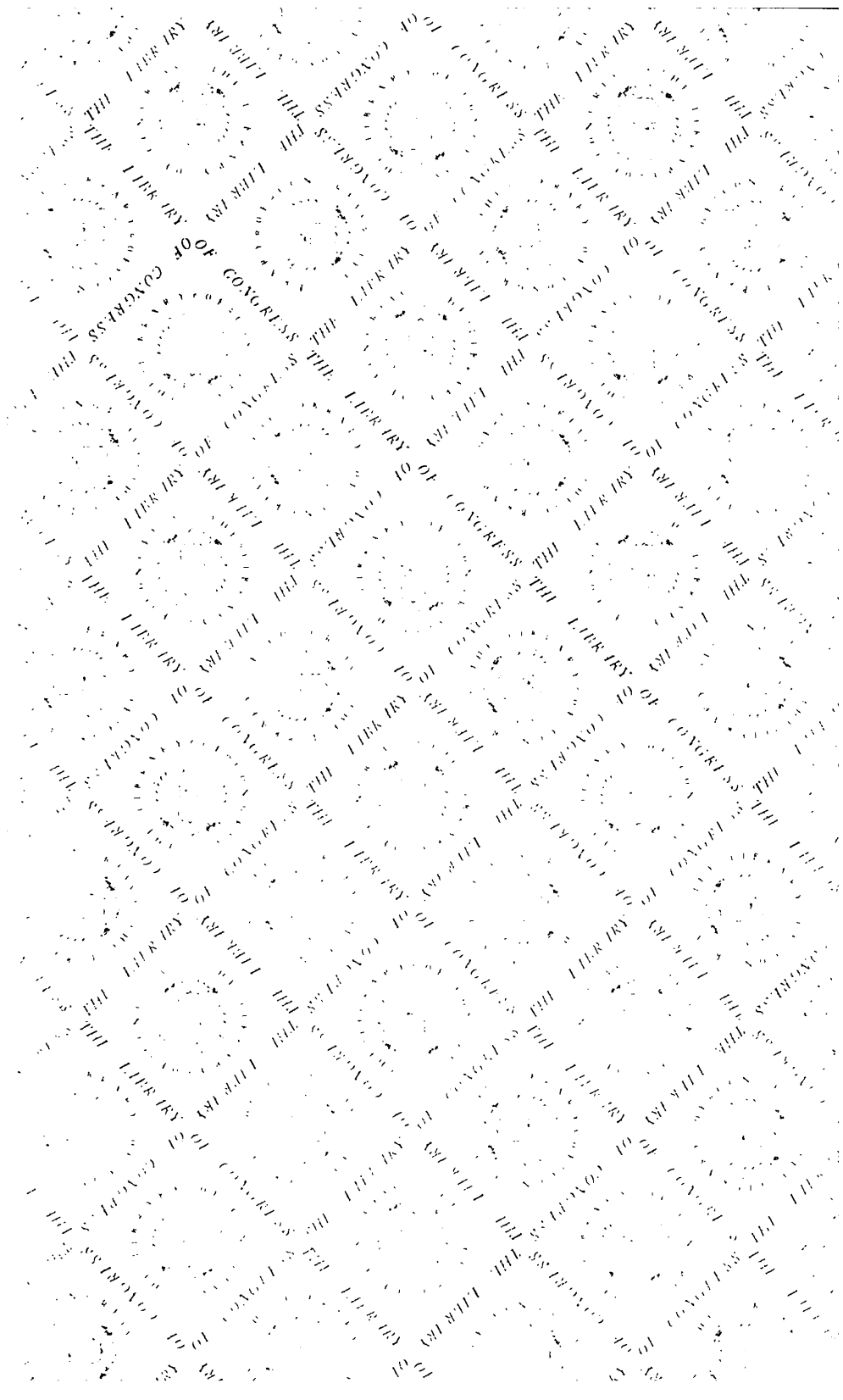
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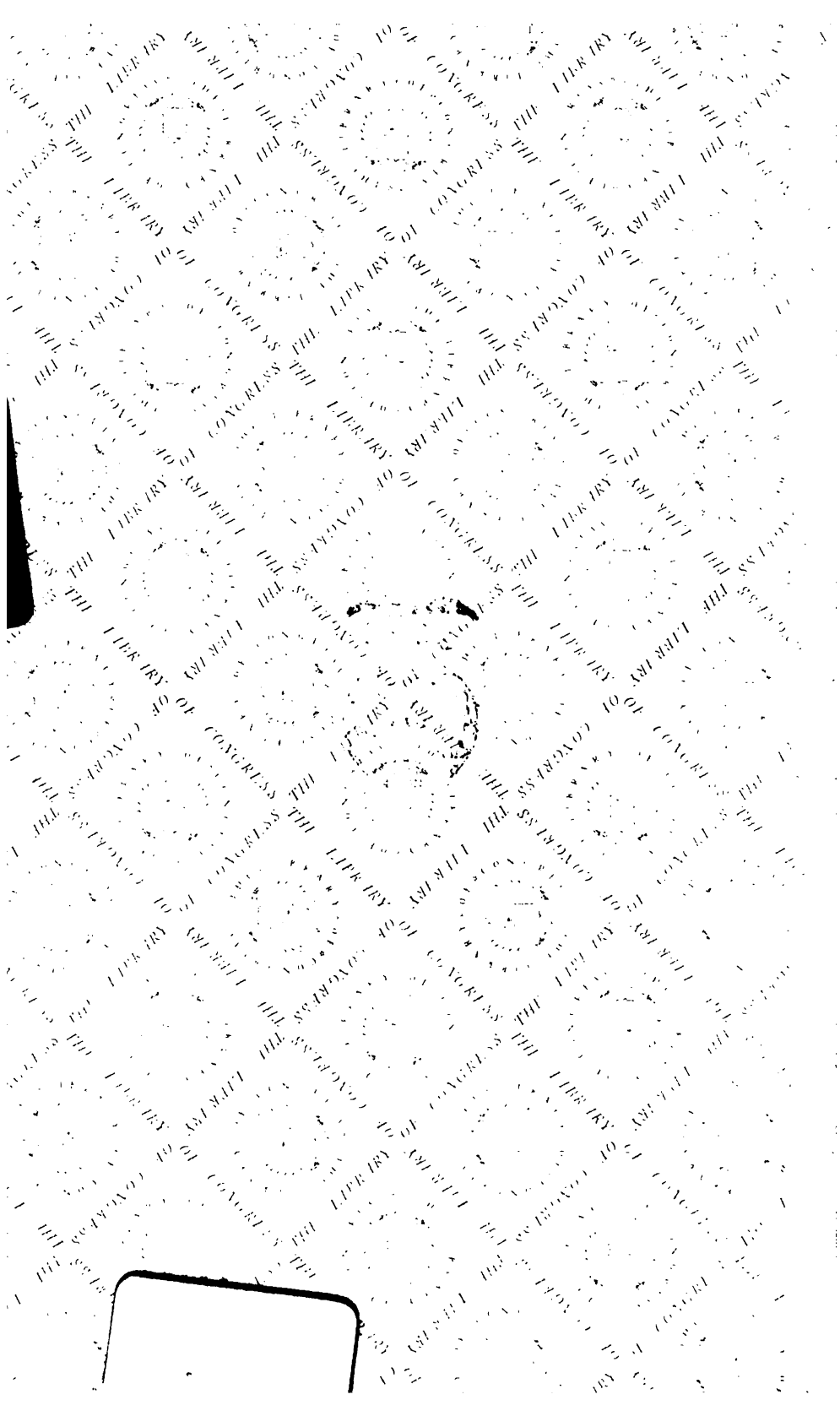
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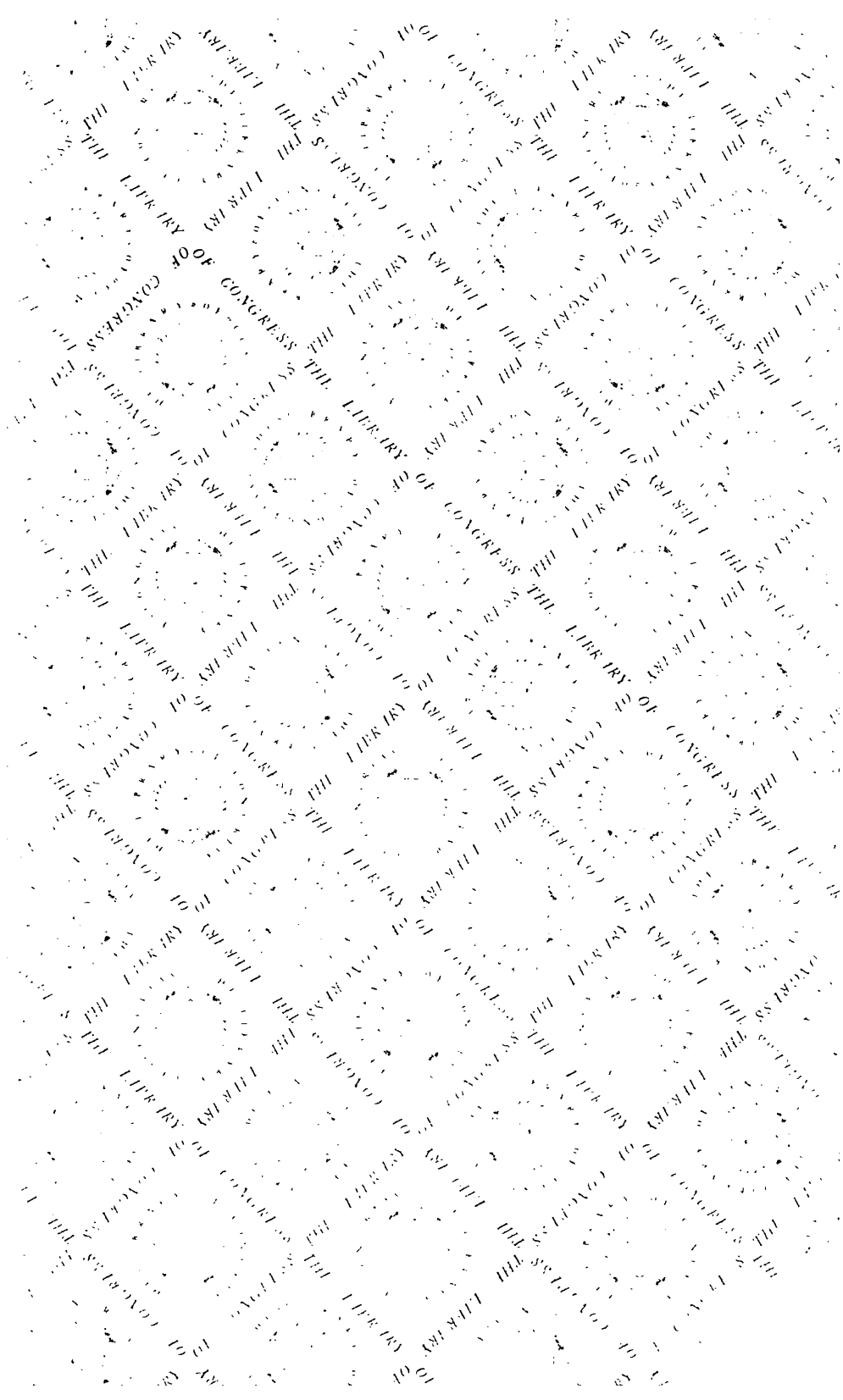


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HEARINGS

BEFORE THE

U. S. Cong. 2.

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COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

OF THE

HOUSE OF REPRESENTATIVES

ON

THE PURE-FOOD BILLS H. R. 3044, 4527, 7018, 12071, 13086,
13853, AND 13859, FOR PREVENTING THE ADULTERATION,
MISBRANDING, AND IMITATION OF FOODS, BEVER-
AGES, CANDIES, DRUGS, AND CONDIMENTS IN
THE DISTRICT OF COLUMBIA AND THE
TERRITORIES, AND FOR REGULATING
INTERSTATE TRAFFIC THEREIN,
AND FOR OTHER PURPOSES.

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GOVERNMENT PRINTING OFFICE.
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PURE FOOD.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Tuesday, February 13, 1906.

The CHAIRMAN (Hon. W. P. Hepburn). The special order for to-day is the consideration of the pure-food subject involved in the various bills we have before us in reference to the matter. We have before us H. R. 3044, 4527, 7018, 12071, 13086, 13853, and 13859. I think that completes the list.

Mr. SHERMAN. I move we take up 4527.

The question was taken; and the motion was agreed to.

The CHAIRMAN. There are certain gentlemen here who have some information to give to the committee upon this subject. I would like to ask if there has been any order of opposition determined upon by the gentlemen who are here opposed to the proposed legislation. Is there anyone who speaks particularly in opposition to the matter?

Mr. YERINGTON. I would state that, after having conference with Colonel Hepburn yesterday, I have been in receipt of many telegrams and letters asking if I could state definitely the proceedings of this committee regarding the day it would sit and the time it would give to the discussion of these various bills, and after conferring with the chairman, I immediately wired these different gentlemen that the hearings would begin this morning and it would be well for them to arrive as soon as possible. They desired to know if a special day could not be set, and then those who were simply able to come for a day or two could do so, and appear at that time, without having to come at the beginning of the hearings and prolong their stay in the city. After conferring with Mr. Hepburn yesterday, I immediately wired them that no programme had been set for special days—that is, that no special time had been designated by the committee—and so I advised them to come immediately. I presume some of them will be here to-morrow or the next day.

The CHAIRMAN. I think it is the purpose of the committee to continue these hearings right along until the subject is closed.

Mr. YERINGTON. After my conversation with you yesterday, in which I believe you said it would be impossible to set any specific day to hear anyone—

The CHAIRMAN. Yes; we believe that to be impracticable.

Mr. YERINGTON. So after that I wired five or six of the gentlemen who were anxious to appear before the committee.

The CHAIRMAN. Let me understand. These gentlemen are in opposition to the bill?

Mr. YERINGTON. Yes; they are in opposition to the bill.

The CHAIRMAN. To any bill?

Mr. YERINGTON. And they are representing practically what is known as the "Rodenberg bill," in the interests of certain manufacturing interests in the country.

The CHAIRMAN. What are those interests?

Mr. YERINGTON. They embody some 22 of the different food interests of the United States; included in them are the large cannery interests on the Canadian coast to the cod-fish interests of New England, and I presume they will have their representatives here to appear before the committee. So I immediately wired them, as I have said, that the hearing would begin this morning.

The CHAIRMAN. Do you understand that there is any gentleman here ready to appear this morning?

Mr. YERINGTON. I do not, so far as this bill is concerned. It seems there was an understanding; it seems that word went out that hearings were postponed from this morning, and it seems that that grew out of the fact that the statement was that they would be postponed from day to day. As I have said, I immediately wired to those different parties giving them the facts. I presume tomorrow or next day or within the next two or three days those interests will be here to appear before the committee.

Mr. WILLIAM BALLINGER. Mr. Chairman, I do not expect to be here longer than to-day, and I would like to make a few remarks to the committee, if I may be permitted to do so.

The CHAIRMAN. We have had no formal action about it, but, after consultation with a number of the members of the committee, it seems desirable that whatever we hear we shall hear in the nature of testimony rather than argument, and therefore we will have the various gentlemen who appear sworn, and we will take their testimony bearing upon the subjects of these bills.

Whereupon—

WILLIAM BALLINGER, having been duly sworn by the chairman, testified as follows:

The CHAIRMAN. Please state your name.

Mr. BALLINGER. William Ballinger.

The CHAIRMAN. And your residence?

Mr. BALLINGER. Keokuk, Iowa.

The CHAIRMAN. And your occupation?

Mr. BALLINGER. I am in the canning and pickling business.

The CHAIRMAN. Now, you will proceed, if you please, with your statement.

Mr. BALLINGER. I have not examined any of the bills except the bill now under consideration. I did not know that there were so many bills here. What I desire to say to the committee is that some form of preservative is absolutely necessary to my business. I think if benzoate of soda is permitted to be used in our business that it would fulfill our wants. I can not state under oath how many States of the Union permit the use of benzoate of soda, but my best information is that 43 States permit the use of benzoate of soda as a harmless preservative. We have a large amount of money invested in our business, and if this article should be excluded either by a bill or by interpretation of that bill by any Department of the Government I consider that my company would substantially go out of business. Therefore it is a very serious matter to my company, which is the

Keokuk Canning Company, of Keokuk, Iowa, that this part of the matter shall be properly taken care of.

I think I violate no confidence in stating that the opinion of Doctor Wiley, not officially expressed, but his private opinion, which should naturally ripen into his official opinion, is that benzoate of soda would be injurious to health. This bill, as I understand it, places in the Department of Agriculture, where the Bureau of Chemistry lodges, the power to decide what shall be considered injurious to health and what shall not. While, as I understand it, the decision of the Department of Agriculture, which would virtually be the opinion, as I suppose, of the Bureau of Chemistry, is not conclusive of the case by any means—that is, we can still resort to the courts to determine whether or not benzoate of soda, if that should be an issue, is harmless—nevertheless, I have often heard it said that when Secretary Taft sits down on a fellow he sits down pretty hard, and if the United States Government should sit down on my business, I should kind of feel as though I was squashed.

Now, knowing as I do, or believing as I do, that the head of the Bureau of Chemistry of the Agricultural Department believes that benzoate of soda is injurious to health, and I firmly believing that it is not (I am not a chemist; I don't profess to know about it technically), and fortified in my opinion by the action of 43 of the States of the Union, as I understand it, that benzoate of soda is harmless, it is a very serious matter to me whether a bill is passed by Congress which either in its terms cuts out the use of a preservative that I deem vital to my business, or whether a bill is passed which submits that question to a department of the Government, which, I understand privately, though not officially, is committed to the theory that it is an injurious substance. If it is an injurious substance I want to know it. I am just as anxious to know it as the committee is to know it—if it is an injurious substance to health—and if it is I shall not use it. But against what I understand is the private opinion of the Doctor, whom I highly esteem, so far as that is concerned, against what I understand is his private opinion, has been the practice of all the States in the Union except two.

The State of North Dakota, as I understand it, which has been most active in its enforcement of its pure-food laws, and which has a commissioner, Mr. Ladd, who, I believe, for his sincerity and his earnest purpose to enforce these laws, has committed himself to all of the lovers of pure food, of whom I am one, in the United States—although the law, as I understand it, of North Dakota prohibits the use of benzoate of soda—Mr. Ladd, this diligent commissioner, has decided to permit it in catsups, because it is absolutely necessary to catsups, and because in his opinion it is harmless. I don't vouch for that, but my understanding of those things will be more elaborated by others later on. Now, there are millions of dollars invested in the pickle industry in the United States—

The CHAIRMAN. What amount of capital is invested in that industry in the United States?

Mr. BALLINGER. I could not say. At a guess, I would say somewhere from \$25,000,000 to \$50,000,000.

The CHAIRMAN. How much is invested in the pickle business and how much in the manufacture of catsup?

Mr. BALLINGER. It is together; it is all one business, and I could not separate them.

The CHAIRMAN. What is the product from that manufacture in the United States annually?

Mr. BALLINGER. At a guess, I would say in cucumbers—we have some statistics on that, and it is a rough guess—I would say four or five millions of bushels; but the industry takes in beans and cauliflower.

The CHAIRMAN. Give me some idea of the value of the product of pickles and catsup?

Mr. BALLINGER. Of the entire annual output?

The CHAIRMAN. Yes, sir.

Mr. BALLINGER. I think it would be very difficult for me to do that, because I am only connected with the pickle branch of it, and a very small manufacturer of catsup, although I hope to be a larger one.

The CHAIRMAN. What is the value of your output of those two articles, pickles and catsup in which you use this preservative?

Mr. BALLINGER. I would say that last year—the year 1905—probably \$125,000.

The CHAIRMAN. In those two articles?

Mr. BALLINGER. Yes, sir.

The CHAIRMAN. You say that benzoate of soda you regard as absolutely essential to the maintenance of your business?

Mr. BALLINGER. Yes, sir.

The CHAIRMAN. Why?

Mr. BALLINGER. Because the goods would spoil if benzoate of soda were not used or some other preservative.

The CHAIRMAN. Is there any substitute?

Mr. BALLINGER. None so innocent or so good that we know of.

The CHAIRMAN. What did you use prior to using benzoate of soda?

Mr. BALLINGER. I never knew technically the names. Those that sold them to us called them “preserving solutions;” they were manufacturers of them and never revealed to us the true constituents of these solutions.

The CHAIRMAN. You used them without knowing what they contained?

Mr. BALLINGER. Yes.

The CHAIRMAN. Or their quantity?

Mr. BALLINGER. Yes; I knew their quantity.

The CHAIRMAN. Did you know the quantity of the particular constituents, the drugs contained in those solutions?

Mr. BALLINGER. No; but I understood always that benzoate of soda was almost the entire constituency.

The CHAIRMAN. Benzoate of soda is a new chemical, is it not?

Mr. BALLINGER. I could not tell how old it is.

Mr. ESCH. What is it derived from; what is its base?

Mr. BALLINGER. I think benzoic acid and soda; I am not a chemist. I think Doctor Wiley could probably tell you about that.

The CHAIRMAN. What percentage do you use?

Mr. BALLINGER. About one-fifth of 1 per cent. I would say at a guess about one-fifth of 1 per cent.

The CHAIRMAN. How do you apply that; how do you ascertain with certainty just the quantity that you use?

Mr. BALLINGER. In a given number of barrels of pickles, for instance, that we put into a tank, we figure out the quantity that should go into the vinegar, we put it into the vinegar, and we put a certain number of ounces into a given quantity of vinegar and figure it out so that the proportion will be about as stated. We do not use more than that, Colonel; we sometimes use less. I have given you the maximum. In some talk I have had about the matter I have indicated that a law granting one-fourth of 1 per cent as a maximum is ample. It really, to my mind, is an insignificant quantity, and yet it is very necessary to preserve our goods.

The CHAIRMAN. How does it operate upon your goods; how does it preserve them?

Mr. BALLINGER. As I said, I am not a chemist; but I suppose that the effect is to destroy those elements in the goods that otherwise would produce fermentation.

The CHAIRMAN. It destroys the germs, in other words?

Mr. BALLINGER. I suppose it does. I am not a chemist, and so I could not answer about that.

The CHAIRMAN. It must be quite an active agent to destroy those germs.

Mr. BALLINGER. I presume it is an active agent. Unless it had activity we certainly would not have any use for it; it has activity because it preserves our goods.

The CHAIRMAN. When I said activity I used that as a synonym for powerful, and do you so understand it?

Mr. BALLINGER. Yes; I understand that it has the power to do something to the goods that causes them to keep.

The CHAIRMAN. How long will catsup keep without this preservative—say, in the summer months?

Mr. BALLINGER. My experience is it will only keep a very short time—perhaps from twenty-four to forty-eight hours—if exposed to the air.

The CHAIRMAN. How long will it keep under the same circumstances with the use of the preservative in the proportion that you have given?

Mr. BALLINGER. It will keep, at any rate, Mr. Chairman, until you use it in the ordinary family—in the ordinary sized bottles, that are used as a rule—it keeps until it would be used up in the ordinary course.

The CHAIRMAN. About what time?

Mr. BALLINGER. Well, I would say two or three weeks, or possibly longer; I have no definite data as to that.

The CHAIRMAN. You have no objection, have you, to a bill that will prohibit the use of any article that is detrimental to health?

Mr. BALLINGER. I have ordinarily no such objection, but I have when I know in advance that the official chemist of the Agricultural Department will decide that benzoate of soda is one of those articles, when I believe it is not.

The CHAIRMAN. Then your objection is not to the law, but to the possible administrator of the law?

Mr. BALLINGER. To what I think is the view of the expert; no objection, so far as the law is concerned; I do not oppose the law.

The CHAIRMAN. Then, if such an unfortunate thing should happen as that Doctor Wiley would die, you would not oppose this legislation?

Mr. BALLINGER. I think the matter is of sufficient importance that it ought not to be decided by one man; that something we have used for years and years ought not to be ruled out by one man—that is, it ought not to be decided by one man.

The CHAIRMAN. It must be decided by some person.

Mr. BALLINGER. Yes; or some persons.

The CHAIRMAN. How would you have this decision made?

Mr. BALLINGER. My notion would be that either the President of the United States or a committee of Congress should call for the best talent that can be obtained in the United States out of a multitude of persons that can be obtained, either five, seven, or ten; let the President decide this, and let these men once for all go over this question and consider it exhaustively, and if they decide that benzoate of soda is one of the articles that should not go into the food products, even in infinitesimally small quantities, I want to know it more than anyone else, and if the decision is that way I would accept it as final. But I would not consider the question as final when one person, whose view I think I know, decides one way, and the States of the Union that have had this matter under consideration for a long time—all the States except two—decide the other way. The other State is Pennsylvania, and I understand she is on the fence about the matter, waiting the action of Congress. I would not think that with this diversity of thought we ought to be legislated out of business, which I think would be the case if Uncle Sam sits down on us. I do not think we ought to be legislated out of business until a committee of eminent scientists should sit upon this question and discuss it and look at books and make experiments and decide it and report to a future body of Congress—

The CHAIRMAN. You understand that the decision, under the bill we are now considering, of the board of chemistry is not final.

Mr. BALLINGER. I understand that

The CHAIRMAN. It would be determined by the courts finally.

Mr. BALLINGER. The courts know law, but they do not know chemistry, and, as I said a little while ago, I would not like Secretary Taft to sit down on me, and much more I would not like the Government of the United States to sit down on me, and if it did I would be pretty well squelched, I think. Whether the position of the Government is right or wrong, suppose it is wrong, I consider I can not buck against Uncle Sam, and it is a pretty serious consideration for me in my business.

Mr. BARTLETT. If this bill was to declare that benzoate of soda was not harmful would you be satisfied?

Mr. BALLINGER. Perfectly; not only satisfied, but happy; but I would not ask that.

The CHAIRMAN. If you had never heard of the opinion of Doctor Wiley, what would be your attitude with regard to the bill?

Mr. BALLINGER. The same as it is now—that is, that it ought not to be decided by one man; it is too important to me. You know how doctors differ. I had a brother who has just died at my home, and the doctors all differed in the diagnosis of his case, and each one was sure he was right as to what was the matter. Doctor Wiley is as

good a man as lives, and as conscientious as anybody, so far as I know, but he may be wrong, and I believe he is wrong; and I think a business such as ours should not be legislated out of existence, which I think would be the case if this bill passed, should not be legislated out of existence without a hearing from more than simply one man.

Mr. BARTLETT. Have you a pure-food law in Iowa?

Mr. BALLINGER. No; but they are about to pass one, and I am glad to say that our legislature is passing a bill which I very much favor, and that is that whenever the Congress of the United States passes a bill that a compliance with the Congressional law shall be deemed a compliance with the laws of Iowa. I think that is the way it reads.

Mr. BURKE. Is this preservative necessary in the preparation of catsup, or do you use it after it is put up?

Mr. BALLINGER. It is necessary in the preparation of the pulp, and then afterwards, but it is a thing that evaporates, and I understand in the cooking it chiefly evaporates out of the first preparation, and then you must put it in the final preparation.

Mr. BURKE. After it is in the bottles is it necessary to put in the preservative?

Mr. BALLINGER. It is in the bottles.

Mr. BURKE. What I mean is, Would it keep without a preservative?

Mr. BALLINGER. No; it would not.

Mr. BURKE. What about the catsup that is made by the ordinary housewife throughout the country; they do not use any preservative, do they?

Mr. BALLINGER. I am not familiar with that.

Mr. RYAN. Do all manufacturers of catsups use preservatives?

Mr. BALLINGER. So far as I know; but I have heard recently of one manufacturer who, it is said, has found a process by which he can do otherwise. We do not believe it, but it is so asserted. If that is so and if this law is passed, he would have a monopoly. I have said all I wanted to, and I thank the committee very much for its attention.

(Thereupon, at 12 o'clock, the committee adjourned.)

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Wednesday morning, February 14, 1906.

Called to order at 10.45 a. m.

STATEMENT OF WALTER H. WILLIAMS, OF THE WILLIAMS BROTHERS COMPANY, OF DETROIT, MICH.

Mr. WILLIAMS was sworn by the chairman.

The CHAIRMAN (Hon. W. P. HEPBURN). Will you please state your name?

Mr. WILLIAMS. Walter H. Williams.

The CHAIRMAN. And your place of residence?

Mr. WILLIAMS. Detroit, Mich.

The CHAIRMAN. Your occupation?

Mr. WILLIAMS. Manufacturer of pickles, preserves, and condiments.

The CHAIRMAN. Whom do you represent?

Mr. WILLIAMS. The Williams Brothers Company, of Detroit.

The CHAIRMAN. You understand, of course, that the subject before the committee is the consideration of a pure-food bill?

Mr. WILLIAMS. Yes, sir.

The CHAIRMAN. You may proceed.

Mr. WILLIAMS. I want to say, first, that our firm does and always has advocated and always has been intensely interested in food legislation. We believe in food legislation which will prohibit the sale of injurious foods, prohibit the sale of fraudulently labeled foods, and legislation which will call for honest labeling of all food products.

Mr. TOWNSEND. Will you please tell us the extent of your business—the volume?

Mr. WILLIAMS. It will reach this year, and has for several years, in the neighborhood of a million and a half dollars.

Mr. BURKE. How much capital have you invested?

Mr. WILLIAMS. We are capitalized at \$650,000, but we have more than that invested in our business.

We have, as every other manufacturer in this kind of business, a good deal of annoyance and embarrassment caused by lack of uniformity of the different State laws. We believe that a national law, which plainly and clearly states what the manufacturer should do or could do to comply with the law, would in the end result in the various States so changing or amending their laws as to form, to a great extent, a national law, and thus give us uniform legislation. The language of the great majority of the present State laws is at the present time and in some States almost identically the same—by that I don't mean word for word and dot for dot, but along the same lines, and in some cases almost word for word—with the language in the present House bill 4527.

If I can have just a couple of moments, I want to cite one instance—not an imaginary instance, but an actual happening—that occurred within the last two months. Under the State laws of the three adjoining States, whose laws are so much like the language of this bill, the States of Michigan, Minnesota, and Wisconsin, which are, as you know, very close together—under the laws of the State of Michigan, or the ruling of the commissioner of Michigan, we must label any preserves which contain glucose as an imitation of a fruit preserve. All of these bottles are strawberry preserves, and are all out of the same kettle, and every one of them contains identically the same substance. The three bottles were labeled for the three different States. Under the Michigan law we must label them imitation preserves; under the Minnesota law we must label them imitation preserves, mixture adulterated, and give the net weight of the package. This package was labeled for the Minnesota law.

Under the Wisconsin law, which is almost identical with the laws of the other States, we must label that compound glucose preserves, and put on the bottle the formula showing the percentages used of the different products. This one reads: "Apples used, 15 per cent; glucose, 30 per cent; granulated sugar, 45 per cent, and fruit as indicated, 15 per cent." The ingredients used are on the label for every

State. They have one of the largest commercial houses in Duluth. A short time ago they sent some goods—among other things several hundred cases of these preserves—labeled for Minnesota. They have a customer across the harbor—I guess you gentlemen are familiar with the situation of Duluth and Superior; Superior is just across from Duluth—they have a customer in Superior, to whom they shipped a case of these goods, and as soon as the goods got over the bridge and were in the State of Wisconsin they did not comply with the pure-food laws. They were put up for the purpose of complying with the laws of Minnesota. On the 16th day of December we had a letter from the Stone Ordean Wells Company, which is as follows:

WILLIAMS BROTHERS COMPANY, *Detroit, Mich.*

GENTLEMEN: Messrs. Berthiaume Brothers, of Superior, have just mailed us the inclosed memorandum from the pure-food commissioner of Wisconsin, in which you will note he states that your Highland brand of strawberry jam is illegal in his State. Kindly advise us what disposition you wish us to make of the matter.

Yours, truly,

STONE ORDEAN WELLS COMPANY.

And this is the notice of condemnation that came from the State of Wisconsin:

MADISON, WIS., *December 14, 1905.*

BERTHIAUME BROTHERS,

1203 Tower Avenue, Superior, Wis.

DEAR SIR: The sample of strawberry jam purchased from you June 19, 1905, by F. M. Buzzell, inspector, was said to be manufactured by Williams Brothers Company, Detroit, Mich., brand "Highland," has been analyzed by Dr. Richard Fischer, chemist for this commission, who reports as follows: A mixture of apple juice, strawberries, sugar, and glucose not lawfully salable as strawberry jam. Not lawfully labeled.

Respectfully, yours,

J. Q. EMERY, *Commissioner.*

Now, that is exactly what it is labeled; the exact ingredients are given on the label, and they found nothing else.

Now, upon receipt of that letter from the Stone Ordean Wells Company we wrote them as follows on December 18:

STONE ORDEAN WELLS COMPANY, *Duluth, Minn.:*

We have your favor of the 16th with memorandum from the pure-food commissioner of Wisconsin in which it is stated that our Highland brand strawberry jams are illegal in his State. Under the Wisconsin law, which has gone into effect, these goods are illegal in that they are improperly labeled, we believe, and must be labeled "compound glucose preserves," or in words to that effect. We have not at this time the exact wording of these labels, but have taken it up with the Wisconsin commissioner, and also asking him as to whether or not suit will be brought against Berthiaume Brothers in this case. Now, if you are going to ship our goods into Wisconsin as well as into Minnesota—these goods, Highland jams—you will have to carry stock for both these States, as the labeling for the two States is entirely different.

On the same day, December 18, 1905, we wrote a letter to the Hon. J. Q. Emery, State dairy and food commissioner, Madison, Wis., as follows:

We have just received from Messrs. Stone Ordean Wells Company, Duluth, Minn., a memorandum showing that your inspector, Mr. E. M. Buzzell, purchased from Messrs. Berthiaume Brothers, 1203 Tower avenue, Superior, Wis., a sample of Highland brand strawberry jam, manufactured by us, and that the sale of these goods is unlawful in your State, owing to the fact that they were improperly labeled. Now, of course, these goods when we sent them from

Detroit were not intended for shipment into Wisconsin. That is to say, they were labeled to comply with the pure-food laws of Minnesota, not Wisconsin. Of course, we have advised Stone Ordeans Wells Company, of Duluth, that if they wish to ship any of these goods into Wisconsin they should advise us when they place the order, so that we may label them to comply with the Wisconsin law, and we presume they will ship no more of these goods into your State unless they are properly labeled. We believe you will readily understand that there was no intent on our part to violate the Wisconsin law. Inasmuch as the goods were shipped into the State of Minnesota and were labeled to comply with the pure-food laws of that State, and we hope in this case you will not feel that it is necessary to commence suit against the goods, and would ask you to kindly advise us in this regard.

Under date of December 19, Commissioner Emery answered as follows:

Referring to your other letter, concerning the Highland brand strawberry jams, I am obliged to say to you that this commission can not promise immunity from prosecution for violation of the food laws in this State. Our letter files are filled with letters offering excuses for violation of the law. If we heeded these excuses and were controlled by them, the food adulterer would find in Wisconsin a paradise; but it is made our legal duty to make the way of the transgressor hard, and we are under oath of office to perform that duty.

I dropped the matter there, and about a week later received a letter from the Stone Ordean Wells Company—

Mr. RICHARDSON. Don't you think that that man was right?

Mr. WILLIAMS. I do, sir; but that is not the point. I am trying to show the necessity for uniform laws.

Mr. RICHARDSON. I mean that that man was right in the construction of that law.

Mr. WILLIAMS. Yes, sir; I think he was. On January 10 last we received an order from the Stone Ordean Wells Company for another car, and in this car they wanted some more preserves, and they wanted them so labeled that they could sell them in Minnesota, Wisconsin, or Michigan. They wrote us, under date of December 11, as follows: "Referring to our order just sent you, we should think you could fix the adulterated jams and preserves so that they would be legal in all States by having a combination label like this"—you can see the way it is arranged there [holding up paper]. It reads: "Imitation fruit jams. Mixture and adulterated. Compound glucose fruit jams."

The CHAIRMAN. Supposing that you got all of that on one label, I presume nobody would want the goods.

Mr. WILLIAMS. I don't know whether they would or not.

Mr. RICHARDSON. If you got it all on there it would not comply with the law of one State, because that State only requires one of the things, whereas you have all three on.

Mr. WILLIAMS. Now, with respect to that, on January 20, 1906, we wrote a letter to the commission, Hon. J. Q. Emery, at Madison, Wis., as follows:

We are about to ship a car of goods to our customers, Stone Ordean Wells Company, Duluth, Minn. As you remember, we had some correspondence with you some time ago in regard to labeling their Highland brand strawberry jams for Superior, Wis. The goods as labeled for Minnesota would not comply with the Wisconsin laws, and they are very anxious to have the goods labeled so as to sell in either State, and they proposed to us to label them as follows: "Imitation fruit jams. Mixture and adulterated. Compound glucose fruit jams."

Will you kindly advise us if the goods can be labeled in this manner, and if they would comply with the laws of your State?

Mr. Emery replied as follows, under date of January 22:

I am in receipt of yours of the 20th.¹ I am mailing to you a pamphlet containing the dairy and food laws of this State, by which you will see that "imitation" food products are unlawful in this State and that "adulterated" food products are also unlawful in this State. Your label seems to confess, therefore, to the unlawful character of your product. The pamphlet, on page 7, explains the proper labelling for artificial fruits, jams, jellies, etc.

I then wrote the Stone Ordean Wells Company as follows:

We inclose you a copy of a letter received this morning from Mr. J. Q. Emery, State dairy and food commissioner, Wisconsin. We wrote to Mr. Emery on receipt of your letter sent to Mr. ———, in which you ask for a compound label which would cover both the laws of Minnesota and Wisconsin. We sent a copy of this label to Mr. Emery, asking as to whether or not goods labeled like this could be sold in Wisconsin. We would ask you to note his reply. We think there is a whole lot of "tommy rot" in the ways the pure-food laws of the different States are administered. Kindly advise as to whether or not we shall label your goods for Wisconsin, or part for Minnesota and part for Wisconsin.

To which they replied on January 26 as follows:

We are in receipt of your favor of the 24th, inclosing copy of letter received from J. Q. Emery, food commissioner of Wisconsin. There seems to be a lot of foolishness in the way these commissioners make their rulings, but suppose that we will have to stand for them, and we suggest that you label 10 cases "14-ounce Highland raspberry preserves" and 10 cases "14-ounce Highland strawberry preserves" to comply with the Wisconsin law, and would ask you to stencil on our case "For Wisconsin trade."

Now, the result of all this shows that we had to take two different lots of goods, identically the same with the exception of the labeling, and ship them, in order to do business in these two States.

Mr. GAINES, of West Virginia. Couldn't you send them the goods and let them label them?

Mr. WILLIAMS. No; because they might have sent them to some man to have them labeled, and they might have gotten on wrong labels and then we would have been punished.

Mr. TOWNSEND. Is there anything in that jam that is injurious?

Mr. WILLIAMS. Absolutely nothing.

Mr. TOWNSEND. Why did you put it up in that form?

Mr. WILLIAMS. This is a cheap preserve only, as cheap a preserve as can be made. At the same time I know that there is no man who can find anything injurious or anything unwholesome about this, or anything that goes into it.

Mr. CUSHMAN. What is the idea in putting the apple juice in?

Mr. WILLIAMS. To make it cheap. If it was simply strawberries and sugar together, a bottled preserve of that sort, absolutely straight strawberries and sugar, they would have to retail for about 35 cents. This bottle retails for 10 cents. We get from the jobber 85 cents a dozen, and the jobber sells to the retailer for 95 cents a dozen, which leaves the retailer a profit of 25 cents on a dozen.

The CHAIRMAN. Apple juice is not the body?

Mr. WILLIAMS. It is not altogether the body; the apple juice is only 15 per cent.

The CHAIRMAN. Where do you get that?

Mr. WILLIAMS. The juice we make from apple cores.

The CHAIRMAN. Where do you get that?

Mr. WILLIAMS. From evaporators.

The CHAIRMAN. What is it?

Mr. WILLIAMS. The skins and the cores of apples.

The CHAIRMAN. The rimming of the worm holes?

Mr. WILLIAMS. Not any more than the rimming of the worm holes in the apples that are canned—the same thing.

The CHAIRMAN. What do you put in it to make it have the appearance of strawberries; what seeds?

Mr. WILLIAMS. I think if you will let me hand you this bottle, that you can see that there is quite a heavy percentage of strawberries in there?

The CHAIRMAN. Is it strawberries?

Mr. WILLIAMS. It is; yes, sir. I do not think strawberries are anything that you can very easily imitate.

Mr. CUSHMAN. No timothy seed in it?

Mr. WILLIAMS. Absolutely none.

Mr. TOWNSEND. Has there ever been any objection made against the fruit as an unwholesome product?

Mr. WILLIAMS. No, sir.

Mr. TOWNSEND. What class of people consume that fruit or jelly?

Mr. WILLIAMS. Mostly the laboring classes, the masses of the people, who can not afford to buy a straight fruit and sugar preserve—it is simply beyond the reach of their pocketbooks. When it comes to the manufacture of these preserves, I would just as soon be out of business on them as to be manufacturing them. I believe they should be labeled, showing their ingredients and showing the quality of the goods. If we could sell the pure goods, we would be more than pleased. We can make a profit on those which we can not on these.

Mr. TOWNSEND. Do you use any deception in the manufacture and sale of these goods?

Mr. WILLIAMS. On that label there is the name of every ingredient that goes into these preserves—every one.

Mr. ESCH. What gives the color?

Mr. WILLIAMS. The strawberries. There is absolutely no coloring in them.

Mr. BURKE. That was the formula of the chemical analysis.

Mr. WILLIAMS. The chemical analysis tallied with the formula given on these goods.

Mr. GAINES, of West Virginia. Excepting that they do not go into the quantity.

Mr. WILLIAMS. No, sir.

Mr. TOWNSEND. Do you have the right under the laws of Michigan, for instance, to manufacture these goods and sell them under those separate labels?

Mr. WILLIAMS. That is a law question, Mr. Townsend, and I am not a lawyer. I believe that would be drawing a rather technical point.

Mr. SHERMAN. Has the right been questioned?

Mr. WILLIAMS. Not that I know of.

Mr. RICHARDSON. There is a law that regulates the sale.

Mr. WILLIAMS. The law of the three States is practically the same, and these labels are made under the interpretation of the rulings of the three different commissioners; made under practically the same law, every one, but each man interprets them in a different way.

Mr. TOWNSEND. You are familiar with the Michigan law?

Mr. WILLIAMS. Yes.

Mr. TOWNSEND. Doesn't that prohibit you from manufacturing and selling excepting under that label?

Mr. WILLIAMS. Yes, sir.

Mr. BURKE. Did you state in your opening statement that the laws of these three States were substantially the same, and that they conform to the language of this bill?

Mr. WILLIAMS. I said they were along the same general lines. The principle of the laws to a great extent and the wording of the laws are very similar—or, rather, this being a later production, House bill No. 4527 is very similar to the laws of those three States. The point that I was trying to bring out is that under that language the rulings made by whoever administers the law could be changed in every change of administration. It is not at all likely that any one man is going to live forever and always be at the head of the department which would administer this law.

Mr. RICHARDSON. How many of the States have pure-food laws? Don't you know, as a general proposition, that pure-food laws of the different States, as a general practice, are a dead letter in the majority of the States as to the enforcement of them?

Mr. WILLIAMS. I would not say that.

Mr. BARTLETT. It does not seem so in Wisconsin.

Mr. WILLIAMS. It is not a dead letter in the State of Michigan, in Wisconsin, nor Minnesota. It is not a dead letter in North Dakota nor South Dakota. It is not a dead letter in Pennsylvania, nor in Ohio, nor in Illinois, nor in Indiana.

Mr. RICHARDSON. Is it not a fact that the standards created by the different States with respect to the sale of goods can not be effectually enforced?

Mr. WILLIAMS. Not without a lot of embarrassment of this kind. You have got to make your goods all alike and label them differently for each State, carrying in your stock of made-up goods a stock for every State in the country doing business. A jobber whose place of business is located on the borders of a State must carry a stock of goods to comply with the laws of those different adjacent States.

Mr. BURKE. You do not object to the law, but you want it uniform?

Mr. WILLIAMS. We don't object to it, but we want it so we can comply with it.

Mr. RICHARDSON. If you had an act of Congress regulating this matter, the States could still enact their own statutes.

Mr. WILLIAMS. I believe they can.

Mr. RUSSELL. Do you know of any State where the law is a dead letter?

Mr. WILLIAMS. I do not know. I would also state that the law is actively enforced in Kentucky.

Mr. RUSSELL. Is there any difference in the enforcement of the law in the various States where you sell the goods?

Mr. WILLIAMS. No, sir; no marked difference. They all seem to be very active. I don't think that, according to a statement made by Senator McCumber in an address made at Niagara Falls, it speaks very well for the enforcement of the State food laws in Kentucky. He spoke of a lady going into a store and purchasing three or four

different articles, and that the secretary of the Kentucky food commission was in the store; and, after the woman had made her purchases and left, the secretary of the food commission purchased the same goods, took them to his laboratory and analyzed them, and found every one of them were illegal under the law of Kentucky; and I think that that would show that the law was not enforced very well. But the Kentucky laws always have been, in our experience, very rigidly enforced.

Mr. RICHARDSON. In the examinations that have heretofore taken place before this committee on this subject, my recollection is that a great many of the States had ceased to vigorously and actively enforce the pure-food laws on account of the great trouble that arose in the different States, the way being so obstructed and hampered that they had ceased to enforce them rigidly. I know of certain States where that has been done. That is why there is a great necessity for a uniform law.

Mr. WILLIAMS. There is no doubt about the necessity for a uniform law.

Mr. TOWNSEND. What else is it, Mr. Williams, that you want to suggest to the committee?

Mr. WILLIAMS. I want to suggest to the committee or, rather, say to the committee that we feel that the manufacturer of foods is entitled to a law which he can read and, after he has read it, know what he must do or must not do to make his goods comply. Under the language of this bill (No. 4527) no man on earth, no manufacturer, can read it and tell when he is going to violate it or not until after the rulings have been made, and rules are just as subject to change as changes of administration. The State laws are liable to change with every change of administration.

Mr. STEVENS. In complying with the laws of the various States by using additional labels very necessarily some additional expense is caused?

Mr. WILLIAMS. Yes, sir; an additional expense in the matter of labels.

Mr. STEVENS. Keeping track of the labels and the boxing?

Mr. WILLIAMS. Yes, sir.

Mr. STEVENS. Who bears the additional expense?

Mr. WILLIAMS. The manufacturer.

Mr. STEVENS. It does not get to the jobber, the retailer, or the consumer?

Mr. WILLIAMS. No, sir. When we engage in that business we furnish the labels, the boxes, and the cases.

Mr. STEVENS. You can not charge any more for your goods.

Mr. WILLIAMS. No, sir.

The CHAIRMAN. What else do you manufacture in the way of food products?

Mr. WILLIAMS. Pickles, very largely, tomato ketchup, fruit butters, vinegars, white-wine vinegars distilled from malt, cider vinegar.

The CHAIRMAN. Did you answer a question as to whether there is a preservative in this [indicating a bottle of strawberry preserves]?

Mr. WILLIAMS. There is none in that.

The CHAIRMAN. Do you use any preservative in the manufacture of pickles?

Mr. WILLIAMS. We have got to use it.

The CHAIRMAN. What do you use?

Mr. WILLIAMS. Benzoic acid in the form of sodium benzoate.

The CHAIRMAN. In what proportions?

Mr. WILLIAMS. In ketchup, one-tenth of 1 per cent. In fruit butter we use the same, and in the pickles we use the same. We do not use any in preserves and jellies, but we must be allowed to use it in fruit butter or stop making it.

The CHAIRMAN. Why?

Mr. WILLIAMS. It will not keep without it.

The CHAIRMAN. When you say fruit butter, do you include apple butter?

Mr. WILLIAMS. Yes, sir.

The CHAIRMAN. You can not make apple butter without a preservative?

Mr. WILLIAMS. Not so it will keep.

Mr. RICHARDSON. Did I understand that there was glucose in that?

Mr. WILLIAMS. Yes, sir; but with your permission I would like to let that preservative question go until the latter part of my argument.

The CHAIRMAN. Very well.

Mr. WILLIAMS. One other thing in House bill 4527 which the fruit manufacturers must go up against is section 7, which authorizes the Secretary of Agriculture to call upon the committee upon food standards of the Association of Official Agricultural Chemists to help him formulate standards for food products. I want to give you a sample of the way those standards can be made by that society or commission under this bill. About fifty or one hundred years ago, the gentlemen of this food standard committee tells us, our grandmothers made fruit butter without the use of sugar. They boiled down the apples and fruit to a sirup, to a semisolid mass, with or without the addition of spices, which produces a very tart-tasting apple butter, and which may have pleased the people of that time, but would not please the people of to-day.

The manufacturer to-day in making apple butter uses sugar and produces a sweet article which is very palatable, delicious, and nutritious, and which is demanded by the people of to-day. It would be absolutely impossible for us to sell apple butter manufactured by the methods used by our grandmothers a hundred years ago. The committee on food standards has held several sittings and has formulated standards for fruit butter. Instead of giving the manufacturer credit for any progress or any ingenuity, they ask us to go back to the methods of fifty or one hundred years ago and make that fruit butter the way our grandmothers made it. [Reads:]

Fruit butter is the sound product made by concentrating fruit juice, adding clean, sound, mature, properly prepared fruit and evaporating to a semisolid mass of homogenous consistence, with or without the addition of spices. It conforms in name to the fruit used in its preparation.

I attended two or three meetings of that committee, and they said that their grandmothers and their great-grandmothers made apple butter without sugar, and they did not see why the manufacturer of to-day should think of using sugar. I do not suppose for one moment that they could find that sugar is injurious, but when apple butter is

made with sugar, according to their contention, it would be a fraudulent article.

The CHAIRMAN. What is the number of that circular from which you are reading?

Mr. WILLIAMS. I read from a bulletin given out by the United States Department of Agriculture, Bureau of Chemistry, and headed "Standards of Purity for Food Products."

The CHAIRMAN. What is the number of the circular?

Mr. WILLIAMS. There is no number on it and no date on it; nothing to tell when it was sent out. We received it from the Department of Agriculture early last Congress.

Mr. RICHARDSON. That related simply to the purity of the product?

Mr. WILLIAMS. That is stated in these rulings, which must be followed. The rulings do not say anything about granulated sugar. If we construed that ruling to mean that we could add granulated sugar if we wished to, we might as well construe it to mean that we could add a preservative if he wished, as long as the preservative is not injurious.

Now, coming to the preservative question, we really feel that that is the most important question connected with food legislation. We can not put up, as I said before, fruit butters, catsup, or pickles without the use of a preservative. As a preservative of those goods we use benzoic acid.

Mr. TOWNSEND. May I ask you how much sugar you use in the apple butter?

Mr. WILLIAMS. From the 1st of February, 1905, to the 1st of February, 1906, we bought from Robert Goyer, of Baton Rouge, New Orleans sugar amounting to \$55,000, and all went into the manufacture of fruit butter. It is absolutely impossible for us to get along without a preservative for those three articles—fruit butter, tomato catsup, and sweet pickles. We, of course, do not want to use, and would not use, an injurious preservative, and if the preservatives we use can be shown to be injurious, and should make the articles which we sell injurious, we do not want to use it. In order that we might be positive that it is not injurious, we have made a careful investigation and research with respect to the subject of benzoic acid and other preservatives.

I will say that before we used benzoic acid, which we started to use a number of years ago, we used salicylic acid, which we dropped on account of a report given by Doctor Weber, of the Ohio State University, a man who stands at the very top of the physiological and chemical world. He said, in his opinion, salicylic acid was not the least objectionable preservative, and suggested that the manufacturer use benzoic acid. We immediately took that up. We made some experiments; we found it satisfactory and of value to us, and we have been using it ever since. Some few years ago we were down here during the hearings before this committee and before the Senate committee, and we felt that there was going to be some talk against the use of benzoic acid. There was nothing said positively at the time, but we had a feeling from what we heard that there would be something said against it.

The CHAIRMAN. What quantity of benzoic acid did you purchase last year—the year that you spoke of purchasing the sugar?

Mr. WILLIAMS. I can not tell the exact quantity. I had a contract for 6,000 pounds, and I overdrew that contract, but just how much I don't know. The only reason that I know that I overdrew the contract was that the man who took it came to me and told me that I had overdrawn it and wanted me to place a new contract. I told him I would not do that, but what we have ordered since that date I am unable to say just now.

Mr. BURKE. How much in the aggregate in dollars and cents?

Mr. WILLIAMS. You could easily figure it out; the price is 31 cents a pound.

Now, let me tell you that we would not use it if we could get along without it. It does not save us anything in the cost of the goods, but it keeps them from spoiling.

Mr. ESCH. Where is benzoic acid found?

Mr. WILLIAMS. I am not a chemist. I am told that it is found, and I think before we get through we will show that it is found, very largely in a great many of the most common fruits and vegetables.

Mr. ESCH. Palatable foods?

Mr. WILLIAMS. In the most palatable foods that we can find; and it seems to me that if the Almighty put it there the manufacturer ought to be allowed to use it, if he don't use it in the same quantities as is put in the fruit by nature. That is not a subject on which I am posted, and it ought to be left for scientists to explain.

Now, in 1902 we went to Doctor Prescott, who for forty-five years was in the department of chemistry in the University of Michigan, and I want to read to you the comments made by Doctor Wiley before this committee in 1902 with respect to Doctor Prescott. Doctor Wiley said:

In this connection I would quote, for the benefit of the committee, the testimony of one of the most distinguished physiologists and pharmaceutical chemists in the United States and perhaps in the world. I refer to Prof. Albert B. Prescott, professor of pharmaceutical chemistry in the University of Michigan, a man of world-wide reputation and authority. He has been president of the American Pharmaceutical Association; he has been a member for many years of the committee which compiles the United States Pharmacopœia; he has been president of the American Association for the Advancement of Science; he is a member of learned societies in all parts of the world, and is universally known as a man of highest authority, unimpeachable character, and greatest ability.

We went to Doctor Prescott in 1902 and asked him to ascertain if there was any preservative that we could use which would be of value to us and far less objectionable than benzoic acid. Doctor Prescott made an exhaustive research, and in the exhaustive report comes to the conclusion, and so states, that no preservative was less objectionable than benzoic acid unless it was abrastol, an article which could only be bought as a medicine in Germany. We found out, when we attempted to get some, that we could not get it in this country, but we secured some in Germany, and from experience and experimenting on ketchup and fruit butters covering two years we have come to the conclusion that abrastol as a preservative is absolutely valueless to us and can not do the work that we require. We tried to ascertain the truth about benzoic acid, and if it was injurious we did not want to use it. We have got to use it or else be given a preservative to take its place. We went to four men, each of them connected with one of the largest universities in the United

States, men who stand at the very top of their class in the chemical and physiological world. They have gone on with this work during the last year—

Mr. TOWNSEND. Who were they?

Mr. WILLIAMS. Dr. Victor Vaughan, who is dean of medicine and physiology at the University of Michigan, a man whom I do not believe anyone can speak too highly of, a man right at the top of his profession. Another gentleman, Doctor Kremers, dean of chemistry at the University of Wisconsin. Another man who has given this subject the very closest attention is Dr. Frank Kedzie, of the Michigan Agricultural College. He is a younger man than the other two, but one of the brightest men in this country in regard to this line of business. These gentlemen, as I have stated before, have worked on this question during the past year. They are now ready to make their report, and they will be in Washington to-morrow; and I want them to make their report to this committee. And I want to say that when they make this report to this committee it will be the first report made to anyone as to the results of their work and their findings. We have told them in going to them that we wanted them to find out the truth and tell us the truth: that we did not care where it hit; that if the findings were against the use of benzoic acid for our business, all right; we wanted to know it just the same as though they found it in our favor.

Mr. TOWNSEND. Do you know of any manufacturer of these goods who does not use some form of preservative?

Mr. WILLIAMS. I do not.

Mr. TOWNSEND. As a manufacturer, do you know of any way to manufacture these goods and keep them as they have to be kept for sale, without a preservative?

Mr. WILLIAMS. I do not.

Mr. BURKE. Have you had any trouble in any of the States by reason of the State laws interfering with your using this preservative?

Mr. WILLIAMS. Our firm has not. We have been told that as soon as this committee gets through with the hearings on this subject there is going to be trouble in Pennsylvania. That is all we know about it.

Mr. RICHARDSON. How? What troubles? In what way?

Mr. WILLIAMS. We understand that the use of benzoic acid will be condemned. And we also know that as soon as this bill becomes a law, if it ever becomes a law, it will be condemned by the Bureau of Chemistry.

Mr. KENNEDY. What is benzoic acid—how is it made?

Mr. WILLIAMS. I can not give you that. You will have to hear that from the gentlemen to-morrow; but I think it is a product of the benzoin tree.

Mr. TOWNSEND. It exists elsewhere.

Mr. WILLIAMS. Yes, sir; I am told it exists very largely in fruits and vegetables that we use every day in our lives—some of us; we all use them—our tastes may not all run alike, and we may not all like grape-fruit, although some of us may.

Mr. RICHARDSON. You stated that if this bill becomes a law it will be condemned by the chemical department of the Government. How did you get that information?

Mr. WILLIAMS. In a letter written by Doctor Wiley to a friend of mine last week.

Mr. RYAN. That is, the use of benzoic acid for preservative purposes will be condemned?

Mr. WILLIAMS. Not only that, but all preservatives. If all preservatives are prohibited we are out business on sweet pickles, tomato ketchup, or fruit butters.

Mr. BURKE. Are these preservatives necessary to this product after their manufacture or in their preparation?

Mr. WILLIAMS. Both in their preparation and in the finished product. For instance, in putting up tomato ketchup we can not grow our tomatoes all at one point. Our factory is at Detroit, and we grow tomatoes at a number of points, having a large acreage at different places to be used in the manufacture of ketchup. We boil that ketchup to a pulp, run them through a machine which takes out the seeds and cleans it and leaves the meat of the tomato in the form of juice. We put that in a barrel, and in order that it will keep until it is time to make it into ketchup we have to use a preservative. I think you understand that it will be impossible for any manufacturer who bottles ketchup to take care of the tomatoes as they come in, as sometimes there is a glut, and we can not take care of them all. It would be impossible to bottle them on the day that they came in.

The CHAIRMAN. In preserving the pulp, what percentage of benzoic acid do you use?

Mr. WILLIAMS. In 45 gallons of tomato pulp we use 6 ounces of benzoic acid.

Mr. TOWNSEND. Is that all benzoic acid?

Mr. WILLIAMS. Not entirely. I think I stated at the beginning that we use benzoic acid in the shape of sodium benzoate. The reason I say benzoic acid is because I have not found a chemist yet who does not say that they do not look for the soda, but they look for the benzoic acid, and that is what they find.

Mr. BURKE. If it was put up at once, would it still require a preservative?

Mr. WILLIAMS. Yes, sir.

Mr. BURKE. Why is it that the housekeepers throughout the country make tomato ketchup and it keeps, and that it is generally preferred to that which is put up by these manufacturing concerns?

Mr. WILLIAMS. I want to say that it does not always keep; it very often does not keep. The housewife when she makes tomato ketchup puts in her cellar, or it remains in the closet on a shelf, with a temperature almost the same all the year round. It is not put in a freight car and shaken up from one end of the country to the other, and it does not stand on the shelves of the grocery store, and it is not subjected at all to the treatment that the ketchup is that is manufactured by us; it is altogether a different proposition. Where a housewife puts up a dozen bottles of ketchup and has two or three spoil, we put up three or four million, and if we had the same proportion spoil that she does we would be bankrupt.

Mr. KENNEDY. When the bottle of ketchup is opened it immediately sours?

Mr. WILLIAMS. It is very apt to sour; that is, within twenty-four or thirty-six hours.

Mr. TOWNSEND. What volume of business do you do along that line—manufacturing those food products?

Mr. WILLIAMS. Fully 70 per cent of our business; it would be a little more than a million dollars.

The CHAIRMAN. Mr. Williams, you spoke a little while ago of a pulp to which you added 6 ounces of benzoic acid in quantity. Is that the ketchup ready for bottling which you manufacture?

Mr. WILLIAMS. That is the pulp that the ketchup is manufactured out of; that is simply the whole tomato without the skin and the seeds.

The CHAIRMAN. During a later period you manufacture from that?

Mr. WILLIAMS. We boil that down—there is a portion, more or less water—it has to be boiled down to the consistency of ketchup, and to that is added spices and vinegar and sugar.

The CHAIRMAN. Do you use a preservative in that?

Mr. WILLIAMS. Yes, sir.

The CHAIRMAN. What proportion do you have to apply?

Mr. WILLIAMS. The same proportion again.

The CHAIRMAN. So that to this quantity of 45 gallons would be placed 12 ounces of the preservative.

Mr. WILLIAMS. I want to correct that, please. In boiling down the pulp it will take two barrels of pulp to make one barrel of ketchup, so that the second 6 ounces is really added to the two barrels of pulp or nearly 3 ounces to the barrel of pulp.

Mr. TOWNSEND. Have you ever had any analysis after you have manufactured to find out what percentage of benzoic acid was present?

Mr. WILLIAMS. We have had that done; had it done by the testing laboratory less than six weeks ago. I sent a bottle of our ketchup, of which I knew the exact percentage of benzoic acid present. They analyzed it and found only one sixty-third of 1 per cent, so that a part of it dissolves or diffuses through the ketchup in such a way that it is not all there.

Mr. BURKE. Do you mean that of 45 gallons bottled it contains 18 ounces of benzoic acid?

Mr. WILLIAMS. No, sir.

Mr. BURKE. You stated that you used 6 ounces in 45 gallons, and that that was boiled down, and twice that quantity made one-half of 45 gallons.

Mr. WILLIAMS. That is a chemical question which I can not explain to you, and I can only tell you what we find ourselves. I don't know the reasons for this, what becomes of it, nor the cause.

Mr. BURKE. But you put it in.

Mr. WILLIAMS. Yes; we put it in. When we boil that pulp, as I say, nearly half of it boils away. We put 6 ounces of benzoic acid in that—sodium benzoate. When that is analyzed there is practically no benzoic acid found in it. What becomes of it I don't know, I have not been able to find out, after it is boiled down. If it was there, we would not use any more preservative.

Mr. RUSSELL. Do you put anything in it to color it?

Mr. WILLIAMS. No, sir.

Mr. RUSSELL. Does the benzoic acid change the color of the tomato?

Mr. WILLIAMS. I don't think it does.

Mr. RUSSELL. How do you account for the difference in color between the regular tomato and the manufactured tomato?

Mr. WILLIAMS. If you will let me show you a bottle of the ketchup, you will see that there is no color in it [showing]. You will see that there is not that pretty red color that there would be if it contained coloring matter. It is simply the natural color of the tomato, probably a little rustier in color than the regular tomato, and that is probably caused by the spices.

Mr. RUSSELL. Is that the same as you manufacture? A great deal of the manufactured product does not look like that.

Mr. WILLIAMS. I do not know about anybody else's goods, but all our goods are like that. There may be a portion of the color due to a certain redness of the tomato or the variety of the tomato grown. There are some varieties of tomato that have a very rich red, and there are others that do not.

I want to call your attention to the way this was labeled. This catsup contained one-tenth of 1 per cent of benzoate of soda, is prepared and is guaranteed to be absolutely free of coloring matter, and the words "One-tenth of 1 per cent of benzoate of soda" are there in twice the size of the rest of the letters.

Mr. BURKE. Upon what State law?

Mr. WILLIAMS. We started that about a year and a half ago under our own laws.

Mr. GAINES, of West Virginia. You say you put in 6 ounces of sodium benzoate? What shape is that in—a liquid or a powder?

Mr. WILLIAMS. A powder.

Mr. GAINES. What proportion of it is soda?

Mr. WILLIAMS. One-quarter.

Mr. GAINES. So it is not all benzoic acid?

Mr. WILLIAMS. No, sir.

Now, the only point is—and all I wish to bring out now—that I don't think this committee ought to recommend any legislation which will give one man the absolute power to say what the manufacturers of this country shall do and what they shall not do. There is a difference of opinion as to what is injurious and what is not injurious. We can show that the very best scientific thought in this country will differ with the present Bureau of Chemistry. Now, gentlemen, do not understand for a moment that I am attacking Doctor Wiley or the Bureau of Chemistry or the Department of Agriculture. I am simply pointing out, or trying to point out, the principle of this bill. The principle is wrong. It is not fair; and I think before you allow anyone to condemn any preservative about which there is a question that you ought to fully investigate the subject by a committee of scientists—the best that we can find—appointed by the President or by Congress.

Mr. WANGER. It has been claimed that by sterilizing you could avoid the use of these preservatives.

Mr. WILLIAMS. Yes; it has been so claimed, but it has not worked out. It is a theory, and it has not been proved.

Mr. WANGER. Have you tried it?

Mr. WILLIAMS. We have not commercially; we haven't taken the chances. We have tried it for our benefit, but find it unsuitable. If there is any way to do without the preservative, we would be the first ones to do away with it.

Mr. WANGER. Do you mean that sterilizing will not preserve the
Mr. WILLIAMS. We have not commercially; we haven't taken the
sive?

Mr. GAINES. Or spoils it for the public taste?

Mr. WILLIAMS. I should think that sterilizing will not keep it; and
I would also say that it is not possible to put out a commercial
ketchup that way, at least to our knowledge.

Mr. GAINES. On account of the expense?

Mr. WILLIAMS. The expense has nothing to do with it. It don't
affect the taste. It is the keeping qualities alone.

Mr. BURKE. To what extent do you sustain loss by your goods
spoil, even with benzoic acid?

Mr. WILLIAMS. I could not say what percentage; we have some
trouble. We have some ketchup once in a while that blows up. I
would not say that it would all keep. We have to guarantee it, and if
we put it out without a preservative, and it got into a hot place in
some grocery store and blew up, spoiling everything around it, we
would be put to considerable expense.

The CHAIRMAN. Does the sterilized ketchup keep up to the point
where the bottle is opened for use? Do you have any difficulty with
it up to that point?

Mr. WILLIAMS. We have had some trouble; some of it that did
not keep. Some of it blew the corks out very soon after being put up.

The CHAIRMAN. Some of that manufactured, even when you use
the preservative, under certain conditions would spoil?

Mr. WILLIAMS. No; very, very seldom. To bring sterilization down
to plain words, it is boiling, boiling it after it is in the bottle, subject-
ing it to intense heat in a retort. It is not supposed to keep it. When
a bottle of ketchup is put on the table, say that small bottle [showing],
in a private home, in a restaurant, in an oyster saloon, from one end
of the country to the other, the bottle has got to keep until it has been
used up, which, in the ordinary case, is from two to three weeks.

Mr. SHERMAN. Is there a preservative used in putting up tomatoes
in tin cans?

Mr. WILLIAMS. I don't think there is, but we are not in the canning
business. But I do not believe that there is.

Mr. SHERMAN. The tomatoes are sterilized, are they not, when put
up?

Mr. WILLIAMS. When a new can of tomatoes is opened it is dumped
right out and cooked and served on the table, and it is done right
away. This bottle of ketchup must go on the table after it is opened
and must keep until it is used up.

Mr. SHERMAN. Are you right in your statement that the tomatoes
are used right up?

Mr. WILLIAMS. I think that if they are not used right away they
are not fit to be used the next day.

The CHAIRMAN. My experience is to the contrary; for a limited
time, not an unlimited time, but two or three days.

Mr. WILLIAMS. That is of course a comparatively short period of
time. As I said before, I am not in the canning business, and all I
know about canned tomatoes is what I have learned from eating them
at my own table.

Mr. TOWNSEND. They might be kept in an ice box?

Mr. WILLIAMS. Yes, sir.

Mr. ESCH. Is this one-fourth sodium entirely dissolved or a portion precipitated?

Mr. WILLIAMS. I think a portion is precipitated.

Mr. ESCH. That would not be evaporated in the first boiling.

The CHAIRMAN. How did you say you applied this benzoic acid to 45 gallons of pulp?

Mr. WILLIAMS. Put it in the boiling pulp and ran it in the barrel.

The CHAIRMAN. In bulk?

Mr. WILLIAMS. Not before we ran it in the barrel, but as we run it in the barrel—the pulp is run hot into the barrel—the sodium benzoate is put into the barrel.

The CHAIRMAN. It is a powder at that time?

Mr. WILLIAMS. A granular substance; it is not a fine powder, but in powder form to a certain extent.

The CHAIRMAN. What do you do in order to diffuse it throughout the entire barrel?

Mr. WILLIAMS. It will diffuse itself. The barrel is rolled around, piled up, and then it is shipped. It gets a good shaking up.

Mr. RYAN. Have you noticed whether or not the agitation of this pure-food question as to the use of acids as preservatives in your products has affected the sale to any extent?

Mr. WILLIAMS. No, sir; it has not; in fact our ketchup business is growing right along. We are selling more goods now since we put on this label than we did before. I do not claim that it is because of the label, but simply the natural growth of the business.

Mr. BARTLETT. The addition of sodium is not a new thing; that is done in the country by the housewife.

Mr. WILLIAMS. Yes; if there is too much acid they put it in to cut the acid.

(Adjourned at 12 o'clock noon.)

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Thursday morning, February 15, 1906.

Committee called to order at 10.40 a. m.

STATEMENT OF PROF. EDWARD KREMERS, OF THE UNIVERSITY OF WISCONSIN.

Professor KREMERS was sworn by the chairman.

The CHAIRMAN (Hon. W. P. HEPBURN). Please state your name.

Mr. KREMERS. Edward Kremers.

The CHAIRMAN. Where do you reside?

Mr. KREMERS. Madison, Wis.

The CHAIRMAN. What is your occupation?

Mr. KREMERS. I am a teacher at the university.

The CHAIRMAN. What branch of science do you teach?

Mr. KREMERS. I am in the department of chemistry.

The CHAIRMAN. How long have you been engaged in the study of chemistry?

Mr. KREMERS. Since 1883.

The CHAIRMAN. Continuously?

Mr. KREMERS. Yes, sir.

The CHAIRMAN. That has been your occupation, has it?

Mr. KREMERS. Yes, sir.

The CHAIRMAN. As a student and teacher of chemistry?

Mr. KREMERS. Yes, sir.

The CHAIRMAN. I suppose that you have been invited to come here for the purpose of giving the committee some information respecting benzoate of soda—or benzoic acid—its effect upon human food, and the propriety of its use as a preservative. Will you go on and make your statement from that proposition?

Mr. TOWNSEND. One moment. How long have you been connected with the University of Wisconsin, Professor Kremers?

Mr. KREMERS. I have been connected with the University of Wisconsin continuously since 1890. For two years before that I was also with the university.

Mr. Chairman and gentlemen of the committee, as your chairman has intimated, I have been invited to appear before you, and have been requested to say a few words about the chemistry of benzoic acid and its derivatives, and its presence in the vegetable kingdom, and the rôle which benzoic and its derivatives play in human economy in general. Benzoic acid derives its name from a natural exudation from the benzoin tree, which is commonly known in the drug stores as "gum benzoin" or "gum benzoës." It was originally obtained from this natural exudation by the process of sublimation. I have here a test tube, in which I sublimated yesterday evening a small amount from the sample, which I shall pass around. You will see these "white flowers of benzoin," as they were called by the chemists of former centuries, and which we now designate more strictly and technically correct as "benzoic acid," the compound being an acid.

When we heat benzoic acid or sodium benzoate, of which you have heard, at a relatively higher temperature than I employed last night, we get a compound, a hydrocarbon, which is commonly known as "benzol" or "benzene," which also derives its name from benzoic acid and indirectly from the gum benzoin, and which resembles this product here [showing a bottle], toluene, a closely related product from coal tar. There is still another substance that derives its name indirectly from this natural exudation of gum benzoin, and that is benzaldehyde, commonly known as the oil of bitter almonds, because it is the substance which imparts a peculiar flavor to the natural, or rather seminatural, product known by this name.

So much for the derivation of a few of these terms. Benzoic acid is found as such, and in the form of derivatives, in the vegetable kingdom. Not only benzoic acid, but a number of the other chemical substances closely related to benzoic acid are likewise found in vegetable organisms. While our knowledge of the occurrence of benzoic acid and these related compounds in the vegetable kingdom is still exceedingly limited, yet we already know of the relatively wide occurrence of these substances in the plant kingdom. I have before me here such a list as I have been able to prepare in a comparatively short time. The family of the palms produces a natural exudation known as dragon's blood, which is similar to this product here, and which, like the gum of the benzoin tree, contains benzoic acid. The lily family produces another such natural exudation, somewhat simi-

lar in character, which also contains benzoic acid. The family of grasses contains, no doubt, a considerable number of representatives which contain benzoic acid or related compounds. We know this for other reasons, from physiological experiments, rather than from chemical tests. Chemically, however, benzoic acid has been identified in sweet vernal grass, and it has been found in the meadow soft grass.

There is another plant for which I can not give you an English equivalent, although I dare say the scientific name will interest you little. Some of you have heard of the German Waldmeister, a plant which is used in the flavoring of certain beverages in the old country; that also contains benzoic acid. There is another family which furnishes us with food products in this country, and which contains several representatives containing benzoic acid in a rather marked degree. Professor Loew a number of years ago, in the seventies, had his attention called to a congener of our cranberry, the German Preisselbeere, which is used extensively as a relish in Germany when properly prepared. The Preisselbeere, like the American cranberry, has a capacity for remaining in good condition for a relatively long time. It was Naegeli who called attention to this fact, and it has been found that in this particular berry there is a substance that has a decided antiseptic property, and that the Preisselbeere contains a natural preservative, a preservative which it itself produces, storing it away in its fruit. Loew at this time was studying the effect of certain vegetables upon the animal organism, and the elimination of certain constituents of these food materials through the urine in the form of hippuric acid. I will come back to this a little later on.

Loew, therefore, examined this Preisselbeere and found appreciable quantities of benzoic acid, which he identified according to the best knowledge of chemists of to-day. Somewhat later, in 1890, two other German chemists, E. Mach and Fortele, examined the Preisselbeere and found in the juice of the berry as much as 0.075 parts of benzoic acid. As already stated, closely related to this German article of food is our American cranberry. It belongs to the same genus of plant. The closely related character of the cranberry has been shown by Mr. Mason in an article published in the Journal of the American Chemical Society, who found it to contain benzoic acid. This is by no means surprising, because of the fact that plants are related not only morphologically—i. e., in outward form—but also in the chemical processes which go on in the plants. It was the presence of the benzoic acid in the Preisselbeere that led Mason to look for the benzoic acid in the cranberry, and he found it there. He found as much as one part of benzoic acid in 2,000 parts of the cranberry. These results were confirmed by W. D. Bigelow in 1904 in a report published in the United States Department of Agriculture, Bureau of Chemistry, Bulletin No. 90, at page 62. Mr. Bigelow states that from 210 to 430 milligrams were found in 1 kilogram of cranberries in 1904.

MR. TOWNSEND. What per cent would that be?

MR. KREMERS. From three to five one-hundredths of 1 per cent. In cranberries that had been stored from the season of 1903 for the St. Louis Exposition and examined in August, 1904, he still found as much as 230 to 220 milligrams of benzoic acid in a kilogram. I may add that in two instances, in the examination of two samples of cranberries purchased in the open market in Wisconsin, I have

been able to confirm these results, obtaining benzoic acid in both cases.

Another occurrence of benzoic acid we find in the sweet clover. Still another, we find it in the family to which beans and peas belong, and in the fruit known as St. Johns bread, which is occasionally eaten by children in this country, but which serves as a more important article of diet in some oriental countries. Benzoic acid is also found in cinnamomum, and it is obtained from the almond. It is found in the ihlang-ihlang and in the tolu, and so on.

Before saying anything about the other substances which, as I stated a few moments ago were closely related to benzoic acid, and which are of interest in this connection, permit me to say a word about the course benzoic acid takes in the human organism. It has been found that albuminous substances, the proteids, such as constitute the major portion of the human organism, and which are of the greatest importance to human economy, may under certain conditions be made to yield benzoic acid, thus showing that these complex chemical products which play so important a rôle in the human system contain a grouping of atoms which is closely related to benzoic acid. As a matter of fact, in the ordinary waste—a continuous chemical process that is going on within us—there is a certain amount of benzoic acid formed from these proteids. This benzoic acid combines in the kidneys with another substance that is found there, which possesses basic properties; and the united product of these two is discharged through the urine.

If we take benzoic acid, which, as the name indicates, belongs to the class of acids because it possesses acid properties, we can neutralize those acid properties in various ways. If we take, for instance, the ordinary sal soda, using an illustration which is familiar to all, and add that to the benzoate of soda, the sal soda will neutralize, as we say chemically, the acid properties of the benzoic acid, and convert it into the neutral salt, sodium benzoate. Sal soda is a derivative of sodium and carbonic acid. Benzoic acid is a stronger acid than carbonic acid, and combines with the sodium to form benzoate of soda. The change that the benzoic acid undergoes in the human system is a similar change. As another product of decomposition in the human organism, there is formed glyccoll, which has both acid and basic properties, and which, because of these basic properties, can combine with benzoic acid, neutralizing its acid properties, forming hippuric acid.

MR. KENNEDY. You said benzoic acid is a stronger acid than carbonic acid—that is, it has more affinity for soda—not stronger in any other sense?

MR. KREMERS. Yes, sir; that is right. It was simply a crude expression, such as is commonly used in discussing chemical subjects.

Now, it has been known for a long time that if certain plants, certain fruits especially, are administered to the human organism the amount of hippuric acid that is eliminated will be increased, indicating that there is something in the plant or fruit which either itself is benzoic acid or has the capacity of forming benzoic acid in the course of the digestive process. Benzoic acid can be administered artificially to the human system, and it can be shown by the increased amount of hippuric acid eliminated. When such fruits as cranberries and others that contain benzoic acid, or related com-

pounds, were eaten, even before we knew that they contained benzoic acid, it was shown that the amount of hippuric acid eliminated by the human organism was thereby increased. Thus, by means of a physiological test we can go out in the vegetable kingdom and discover, if we want to, benzoic acid, or the related compounds, which under like conditions will yield benzoic acid.

Now, among the substances that yield benzoic acid and which we find in the vegetable kingdom, some of which we use for food and condiment purposes, I would like to call your attention to a few. First of all let me call to your attention the so-called "oil of bitter almonds," to which I have already alluded. The oil of bitter almonds derives its name from the bitter almond—the seed of a European tree—but to-day it is largely prepared from coal-tar products. The bitter-almond oil which I purchased in the drug store this morning is labeled "poison," because the bitter-almond oil contains hydrocyanic acid, a very strong poison. Benzaldehyde as such is not a poison. It is because this is supposed to be true bitter-almond oil that it is labeled "poison." The cherry laurel belongs to the same family, and yields such a product, as also do the chokecherry, the peach, the ordinary cherry, the wild cherry, the plum, the blackthorn, and no doubt a considerable number of others.

There is scarcely a substance known to organic chemistry which is as widely distributed in the vegetable kingdom as the oil of bitter almonds. And in this connection let me call your attention to a little trick that we make use of in the canning of cherries and peaches. It is commonly known to those who are engaged in the occupation of preserving that the preserved cherries and peaches will taste somewhat better if you leave some of the kernels of the seeds in the finished product. There can be but little doubt, if any, that by leaving these seeds in the fruit there is formed a certain amount of this bitter-almond oil, which imparts something of a bitter-almond flavor to the finished preserved fruit, thus making it more agreeable to the taste. It should be stated in this connection that not only has this bitter-almond oil been obtained from the seeds of these plants, but at least in the case of the cherry it has also been isolated from the pulp of the fruit. There are a number of other plants in which the benzaldehyde has been found. Of the occurrence of the other substances I might quickly mention a few instances.

For example, cinnamic aldehyde, which in the human organism undergoes a similar change—it is oxidized to benzoic acid and eliminated in the form of hippuric acid. Cinnamic aldehyde, one of the principal constituents of cinnamon, which we use for culinary purposes, is an instance of this kind. There are a number of other occurrences here, with the recital of which I shall not take up your time.

Before I take up the last instance this morning of the occurrence of a related substance to benzoic acid that is found in the vegetable kingdom, let me go back once more to the process which benzoic acid undergoes when it comes in contact with glyccole, forming hippuric acid. The change that I have tried to make clear is this: From these two substances—from a molecule of each of these substances, a molecule being the smallest part that we can conceive of—there is eliminated one molecule of water.

Now, crudely speaking, quinic acid, the next substance which I desire to allude to, may be regarded as benzoic acid plus four mole-

cules of water. It is not exactly that, but you will get the idea that I wish to convey. Quinic acid evidently is changed in the human organism by the elimination of these four additional molecules of water, thereby converting it into benzoic acid, the same substance which in the kidney is converted into hippuric acid.

It has been observed that herbivorous animals, which feed on grasses containing benzoic acid, or which feed on grasses containing quinic acid, produce a considerable amount of this hippuric acid.

As far as human food materials are concerned I will call your attention primarily to one occurrence of this quinic acid. I told you before that after benzoic acid had been found in the German Preisselbeere it seemed but natural to plant chemists that benzoic acid should be found in the closely related plant, the American cranberry. There is another representative of the same genus which is known in Germany by the name of the Heidelbeere, for which we have no English equivalent, because the plant is not found in this country. This Heidelbeere is eaten extensively, both in the fresh condition and after it has been cooked. In addition to citric acid, which we also find in the other berries, we find also quinic acid. It may here be said that this Preisselbeere was officinal in some European pharmacopœias, having also been used as a household remedy for a long time in cases of dysentery and diarrhea.

While speaking of the medicinal properties of some of these, I may mention that the eclectic medical practitioners in this country, who formerly tried to make their materia medica independent of foreign sources by searching for all sorts of remedies in the American flora, fell upon the cranberry, not knowing its constituents, and used that as a remedy to some extent. The use of the Heidelbeere in cases of dysentery suggested its antiseptic properties, the same properties which caused Naegeli to point out to Loeve years ago that in the cranberry he would find substances which possessed antiseptic properties. As a matter of fact, small amounts of benzoic acid, which really are eliminated from the system in the free condition at times, have the capacity of disinfecting those parts of the digestive tract which might otherwise at times be seriously infected.

I have alluded to the occurrence of quinic acid in the grasses, and the rôle it plays in the food of the herbivorous animals. It has been found in the coffee, it has been found in cinnamon, in cinchona bark to the extent of 9 per cent, and it has been reported as having been found in some other plants. I prefer not to mention these, because its occurrence in them may seem questionable.

I have told you that benzoic acid derives its name from the natural exudation of gum of the benzoin tree, and that it has been prepared from this source. I have no desire whatever to deceive you about the origin of the present commercial benzoic acid. The amount of this gum that is found in the market is nowhere near sufficient to supply the amount of benzoic acid that is used, not even for medicinal purposes before it was used as a food preservative. The benzoic acid of to-day and the bitter-almond oil of to-day—in that case it need not be labeled poisonous—is obtained from toluene, the closely related hydrocarbon to benzene, both of which are coal-tar products.

Now, whenever the phrase "coal-tar products" is mentioned some have a vision of substances which our gas factories formerly tried to throw into the sewer, and then came into conflict with the city au-

thorities because they didn't want it even in the sewage. If you will pass through the parlors of our most respected society you will meet with certain perfumes—plant perfumes, we choose to call them—which, like the bitter almond, were formerly obtained from plants. The most subtle nose of laity at least, I dare say, will not be able to distinguish between the violet odor obtained from coal tar by a round-about chemical process and the violet odor extracted by the French manufacturer from violet pomade obtained from the genuine violet.

The bitter-almond oil of the market to-day is not obtained from the bitter almond, at least only to an exceedingly slight extent. The manufacturer of bitter-almond oil long ago found that there were other sources for the same thing. I have mentioned a number of them to you. Because of the greater cheapness of the peach and apricot kernels much larger quantities of "bitter-almond oil" have been manufactured in recent years from these sources. This product has been selling under the name of "bitter-almond oil," and I am sorry that even the latest edition of the United States Pharmacopœia sanctions such an abuse of terms. A still larger amount of this so-called "bitter-almond oil" is, as has already been indicated, obtained from another source. The largest amount is obtained to-day from toluene, which in turn is obtained from coal tar. It is one of the constituents of coal tar. In the process of manufacture of benzoic acid and of the bitter-almond oil from this toluene, chlorine is employed. Chlorine is used as a means of converting this toluene into benzaldehyde and into benzoic acid. How that is brought about chemically I shall not explain in detail.

Now, it may be said, and should be said, that first of all, benzoic acid, irrespective of the sources it is obtained from, is benzoic acid. It has the same properties, physically and chemically, and therefore it has the same physiological properties. The difference between the bitter-almond oil, for instance, from the peach kernel and the apricot kernel, and the bitter-almond oil obtained from toluene, is this: This [indicating a bottle] contains from 2 to 4 per cent of hydrocyanic acid, a deadly poison, and is marked "poison" by the druggist.

Mr. MANN. State which you mean, so that the record will indicate it.

Mr. KREMERS. The bitter-almond oil obtained from the natural sources.

Mr. MANN. Which source; the almond, the peach, or both?

Mr. KREMERS. From all three in that case [indicating]. I do not care to go into minute distinctions between those three. They are so minute that chemists can hardly detect them.

Mr. MANN. You said a while ago that you were sorry to say that that included them all.

Mr. KREMERS. I alluded to the fact the "oil of bitter almond," whether obtained from one source or another, is allowed to be sold as oil of bitter almond, when it ought properly to be sold as the oil of the peach kernel or as oil of the apricot kernel. That is the point I desired to make. Now, the so-called bitter-almond oil obtained from toluene does not contain these impurities—that is, hydrocyanic acid—but it may contain other impurities. For culinary purposes, the bitter almond obtained from any of these three vegetable sources should first be deprived of what the cook would regard as an impurity, the hydrocyanic acid. The manufacturer of benzoic acid from

toluene should likewise naturally remove any impurities that may be due to the character of the process that he employs in its manufacture, and these impurities are apt to be produced through the use of chlorine, and it is for that reason that I mentioned chlorine in the manufacture of benzoic acid.

Now, benzaldehyde is a substance much less stable than benzoic acid; and whereas we find bitter almond in the market containing chlorine, it has been possible for a number of years to remove the last trace of chlorine from the bitter-almond oil made for the market. It ought to be, and certainly is, much easier to remove impurities incident to the process of manufacture from toluene from the benzoic acid, and the Pharmacopœia, although it makes a liberal allowance for impurities that can not be readily removed in other instances, demands that the benzoic acid to be used for medicinal purposes shall be practically free from the chlorine products.

It may be said that artificial benzaldehyde should not be administered to the human system under any conditions; that we ought not to take the risks; that we ought not to allow anybody commercially interested in benzoic acid to be judge of the purity of that acid, and to say whether anybody is to have it administered to his organism or not.

Now, gentlemen, benzaldehyde, as its name indicates, is exceedingly closely related to benzoic acid. I dare say that this bottle, which is supposed to contain the bitter-almond oil exclusively, also contains benzoic acid. If I expose this here it will take up the oxygen from the atmosphere and oxidize itself to benzoic acid. If I deprive benzaldehyde of the opportunity to get oxygen from the atmosphere it will oxidize itself. If I shake it with a small amount of basic substance the affinity of the benzaldehyde for the oxygen is so great that it will oxidize itself; it will undergo autooxidization, one part of it will take the oxygen from the other part, so great is its affinity for oxygen.

The committee of chemists that has been at work, I think, for a year or more to devise standards for food products has authorized, at least in a preliminary way, the use of bitter-almond flavoring; and if my arithmetic is what it ought to be, I figured out on the train the other day that the amount of benzaldehyde that is administered, according to a statement of a confectioner in my local town, in a dish of ice cream flavored with bitter-almond flavoring will produce in the human system as much benzoic acid as the manufacturer of food products claims is necessary for the preservation of the food material.

Now, I desire to say, gentlemen, that none of the five chemists who constitute that—

Mr. ESCH. What committee is that—the official name?

Mr. KREMERS. The standards committee of the Department of Agriculture, as I am informed by this gentleman here [indicating].

I dare say that not a single representative of that committee will claim that the American public, now enjoying its bitter-almond flavoring—whether it be in connection with ices or puddings—is going to be deprived of the privilege of using an artificial benzaldehyde, which, in the human system, is oxidized into benzoic acid. So that, whether benzoic acid will be prohibited or not, should we enjoy occa-

sionally a plate of ice cream we shall indulge in the use of artificial benzoic acid for all that.

Gentlemen, I don't want to take up more of your valuable time unless you desire to ask some questions of me, for I fear that I may not have made myself perfectly clear. I will admit that I am accustomed to talking technically on technical subjects, and that I am not an expert in the popularization of scientific subjects. I trust you will pardon my shortcomings in this respect. But briefly let me summarize the facts that I have tried to make clear to you. Benzoic acid is found in the vegetable kingdom; it is fairly widely distributed in the vegetable kingdom. We find it among others in products of the vegetable kingdom which we use for food purposes. We find it even more widely in food products which are used by herbivorous animals. In addition to benzoic acid, we find closely related compounds, namely, benzaldehyde, commonly known as bitter almond oil; cinnamic aldehyde, and quinic acid.

I have tried to make plain the fact that the benzoic acid is formed in the human system, and that the amount of hippuric acid eliminated from the system is increased whether we administer benzoic acid as such or whether we add it through certain food products; in other words, that benzoic acid is a natural product of the human economy.

Finally, I have tried to make clear to you gentlemen that whether it seems desirable to you or not to prohibit the use of benzoic acid from any artificial source rather than the natural source—and there is no bitter-almond oil which, after it is a day old, but that contains some benzoic acid—that benzoic acid directly or indirectly will be administered to the system through the bitter-almond flavor, as I have explained.

Mr. TOWNSEND. You are not a physiologist, are you?

Mr. KREMERS. I am not.

Mr. TOWNSEND. Are you able to answer as to whether the benzoic acid has an injurious effect upon the body?

Mr. KREMERS. I told you that I am not a physiologist, but I have prepared myself for a question of that sort, because it occurred to me that it would be a natural question for you to ask. I have here, in order that I might not be compelled to rely entirely upon my memory, a copy taken from the National Dispensatory, one of the standard commentaries on the United States Pharmacopœia, a statement concerning the physiological action of benzoic acid. This statement is written by Professor Hare, one of the most prominent writers in this country on therapeutic subjects [reads]:

Ordinary doses cause a sense of warmth over the entire body, which feeling increases with the amount ingested, large quantities causing severe burning pain, etc.

The drug increases the acidity of the urine, as it is eliminated by the kidneys as hippuric acid.

Now, lest the statement might be misunderstood, let us read the last paragraph; but it will be apparent to you that Mr. Hare does not speak of benzoic acid here in quantities such as have been under consideration before you, but in totally different amounts: "It may be given with benefit in certain diseases due to alkalinity. Benzoic acid is given in the dose of from 10 to 30 grains." Those amounts may be

administered by a medical man, and they are very much larger than any amount that is necessary to bring about the preservative action.

Mr. TOWNSEND. Does any antiseptic that is taken into the system interfere with digestion?

Mr. KREMERS. I dare say it does.

Mr. TOWNSEND. In that respect is it injurious?

Mr. KREMERS. Not necessarily. Suppose you were to prohibit the use of salt because it acts as a preservative—I have never heard anybody advocate the prohibition of the use of smoke in the preservation of hams, although in the destructive distillation of the wood in the smoking of hams creosote is formed. I have sometimes heard it said that if you liquified the smoke and applied that product to the hams it would be injurious. I don't see why. I have never heard it said that smoked ham is injurious, although possibly smoked meats preserved by means of phenol and creosote are not as healthy, and salted meat may not be as digestible as fresh meat; and I dare say that physicians would not recommend smoked meat to a patient if they wished to give a very digestible meat; but I have never seen people shrink from the use of smoked ham when in a healthy condition.

Mr. KENNEDY. How much creosote would be in an ordinary smoked ham? Creosote in quantities is a rank poison.

Mr. KREMERS. I could not say how much.

Mr. TOWNSEND. Have you made any investigation as to the other countries of the world acting in regard to this matter?

Mr. KREMERS. I have not.

Mr. BARTLETT. A statement was made here yesterday with respect to the amount of benzoic acid that was put in 45 gallons of the preparation for tomato catsup. I believe they said that 6 ounces were used to 45 gallons of pulp. Now, would that affect a person as much as you indicated in the dose prescribed—so many grains?

Mr. KREMERS. Catsup, as I know it, is used in relatively small quantities, and the amounts that we consume at a sitting are absolutely small as well. Judging from the ratios that you mention, I should say that the amount of benzoic acid—the initial amount—would be exceedingly small. The initial amount being small and the quantity of catsup consumed being small, I should say that the effect would be very trifling.

Mr. BURKE. What is the proportion of benzoic acid used in food preservatives?

Mr. KREMERS. I have to say that I am not an expert on this subject.

Mr. BURKE. You made the statement that in eating an ordinary dish of ice cream flavored with bitter almond a person would consume as much benzoic acid as was employed ordinarily in food preservatives.

Mr. KREMERS. I based this on the statement which I found somewhere—I think it is Mr. Mason's—that on an average the amount of benzoic acid found in the cranberry, 1 to 2,000, was equivalent to the amount used in the preservation of food. That was the statement upon which I based my figures, and I figured it out in this way: Assuming that 1 ounce of catsup be used, and if we consume all of the catsup—and in an oyster cocktail we would perhaps use more than in any other manner—then the amount would be very closely

the same as the amount of benzoic acid produced in the human system if we ate a dish of ice cream, using the bitter almond flavor put in by the confectioner.

Mr. BURKE. If this acid was used in tomato pulp to the extent of one-tenth of 1 per cent, and then the pulp was boiled so as to be reduced one-half, what effect, if any, would it have upon the acid being eliminated or remaining in the same proportion?

Mr. KREMERS. Without having tried that particular experiment, I may reason from an analogous experiment. In the preparation of benzoic acid from the cranberry I found that benzoic acid in the cranberry to be principally in the juice. I found by distilling over about one-third of the juice, even before I quit distillation, I had practically all the benzoic acid out of it. From that experiment, with the amount of benzoic acid present in the cranberry juice, I should assume that practically all of the benzoic acid is carried away by distilling over one-half of the water of the juice.

Mr. BURKE. Then, it is not eliminated by boiling?

Mr. KREMERS. Oh, yes.

Mr. KENNEDY. Before it is half boiled out?

Mr. ESCH. This is put in the pulp as a salt, or powder. Now, in the process of boiling is any of that precipitated?

Mr. KREMERS. "Precipitation" is not the correct chemical term. I want to guard against answering "yes" to that question. Benzoic acid is not very soluble in water. Its sodium salt is more soluble. However, the tomato, for instance, to which allusion has been made, contains citric acid and other acids. These acids that are naturally in the tomato will liberate the benzoic acid from this salt, so that, whereas the sodium benzoate, as such, is not volatile, the benzoic acid being set free will then be carried away in the process of evaporation of the water.

The CHAIRMAN. Suppose that 6 ounces of acid was applied to a barrel of 45 gallons of pulp and afterwards two barrels of that preparation are boiled into one, and that then 6 more ounces of benzoic acid is applied to that substance. How much of the benzoic acid would you expect to find in that finished product, 18 ounces having been applied?

Mr. KREMERS. Six ounces to each barrel would make 12 ounces. I should presume that in the light of the statement that was made here by another gentleman of the committee, viz, that one-half of the water of the tomato pulp is evaporated, that practically all of that benzoic acid, the 12 original ounces, are wasted, so far as any preservative action is concerned, and that the benzoic acid which has any preservative effect on the finished product is the benzoic acid added after the evaporation.

The CHAIRMAN. All of the first 12 ounces is out?

Mr. KREMERS. Practically all, I should say.

Mr. GAINES. What proportion of benzoate of sodium is benzoic acid—how much of it?

Mr. KREMERS. I think, if my memory serves me right, that 1 pound of benzoic acid will make 1.18 pounds of sodium benzoate; not quite 1.2 pounds.

Mr. GAINES. Of 100 parts 18 parts would be soda and the rest benzoic acid.

Mr. MANN. One hundred and eighteen parts, 18 parts would be soda and 100 parts benzoic acid.

Mr. KREMERS. That is nearly true.

Mr. MANN. When you refer to 6 ounces of benzoic acid, did you mean 6 ounces of benzoic acid or 6 ounces of benzoate of sodium—that is, when you referred to the proportion in the tomato catsup, did you refer to 6 ounces of benzoic acid or 6 ounces of benzoate of soda?

Mr. KREMERS. As I understand it, benzoate of soda.

Mr. MANN. So it would be a trifle less than that amount of benzoic acid.

Mr. KREMERS. When he uses those terms he naturally implies the use of sodium benzoate.

Mr. MANN. A good deal of the testimony is toward directing the attention of the committee to the fact that benzoic acid is found in plants and other natural growing articles. Is that fact conclusive proof that it is not injurious to the human system?

Mr. KREMERS. We may eat sweets and not be harmed by them, if eaten in moderation. The small boy who fills himself with apple pie will have to suffer for it. The most innocent food products may be made dangerous. Bread, the staff of life, is a poison if taken in too large quantities.

Mr. MANN. What is the point in showing that it is found in the plant rather than in coal-tar products? Is there any difference?

Mr. KREMERS. The point is simply this: That while I am a respecter of science, I believe in the selective capacity of man; I confess to having more confidence in man selecting in the course of centuries the right thing than the scientists pointing out the right way. For instance, it has been found that an article of diet has been used for a long time without any apparent injurious effects. I should say that that is better proof than any physiological test which may cover a few weeks or months. That is the basis of my argument. Don't you think that that is a logical conclusion?

Mr. MANN. Yes; it would be a logical conclusion if you had the facts upon which to base the proposition in this case.

Mr. KREMERS. These fruits have been eaten for centuries, haven't they? They have been an article of diet with people ever since we have known them. No doubt primitive man picked out those berries long before he could preserve them. The acidity did not bar him from eating them. It is only with the advent of sugar that they are made very palatable.

Mr. STEVENS. You read the dose that is given in cases of some diseases. For what diseases are those doses given?

Mr. KREMERS. It may be given [reading] "in incontinence, phosphaturia, and cystitis," which is inflammation of the bladder. Those are the diseases mentioned by Hare. It has the effect of neutralizing the alkali in excess.

Mr. MANN. I would like to still ask the professor, with some interest, as to whether the fact that benzoic acid is found in plants in any way at all affects its effect upon the human system; whether the natural acid of plants makes any difference about its effect upon the human system?

Mr. KREMERS. Certainly all the constituents of the plant, no matter what they be, have some effect. There is no question about that.

You can not administer anything, whether it be benzoic acid or citric acid or albumen or carbohydrate. They will all have their effect.

Mr. MANN. You lay a great deal of stress upon the fact that benzoic acid is found in plants. Does the fact that an acid is found in plants in the state of nature of itself show that it can not be injurious to the human system? I did not mean used in exorbitant quantities.

Mr. KREMERS. Take the case of hydrocyanic acid. When bitter almond oil is obtained from the natural product, hydrocyanic acid is present, and hydrocyanic acid is a deadly poison.

Mr. MANN. So that it is not a question of whether benzoic acid is found in cranberries or not. The question is, What is its effect upon the human system?

Mr. KREMERS. I would not say that because strychnine is found in plants that we could use strychnine as food.

Mr. MANN. I have heard so much lately about the fact that benzoic acid is found in plants that I wondered if that settled the question.

Mr. KREMERS. The statement that it is found in plants, coupled with the fact that it really undergoes no change in the human system. All starches are changed in the human system, and the proteids also, which are the heat producers and the energy producers of the body. The benzoic acid undergoes no other change in the human system than this one change that I have spoken of—conversion into hippuric acid—and that is after it has run almost the entire passage of the system.

Mr. MANN. Is it not a strain upon the kidneys to convert this benzoic acid into another acid?

Mr. KREMERS. It is the natural thing.

Mr. MANN. Is it any special strain to do it?

Mr. KREMERS. Not that I am aware of. You are asking a question now upon which I would not wish to state too much.

The CHAIRMAN. Some other preservative might be used in place of the benzoic acid that would serve the same purpose?

Mr. KREMERS. I am not well versed in food matters. I know that salicylic acid has been used to a considerable extent; boracic acid also has been used. There are worse things than that, by far, that have been used. The question is, I suppose, of finding a preservative that, if it is not absolutely harmless, will do the least harm.

The CHAIRMAN. Have you experimented in any way to discover, if possible, the comparative harmlessness of these three that you have named?

Mr. KREMERS. That is not in my field of work, and I should not want to attempt it.

The CHAIRMAN. Taking the same quantities, which would you say was the most effective in arresting decay in food products of these three that you have mentioned?

Mr. KREMERS. Again I shall have to plead considerable ignorance on that subject.

The CHAIRMAN. You were not attempting to make any comparison between the healthfulness, if I may use that phrase, of the three acids that you have spoken of?

Mr. KREMERS. An apriori answer to such a question might be attempted in this way: Taking, for instance, salicylic acid and benzoic acid, the two that have been referred to here; salicylic acid may be

regarded, chemically speaking—I am not speaking physiologically—as a combined molecule of benzoic acid and phenol, which we commonly know as carbolic acid, and chemically it has the properties of both. We know substantially that carbolic acid has toxic properties, and even if I knew nothing about the physiological effects of salicylic acid, but simply the formula of salicylic acid, and if I were asked to make a priori statements in regard to the two, I should venture to suggest, not as a certainty, but with an expectation of a reasonable probability, that the salicylic acid would have more toxic effect than the benzoic acid.

Mr. KENNEDY. You mean by “toxic,” poisonous?

Mr. KREEMERS. Yes, sir.

The CHAIRMAN. What would you say about boracic acid? Does benzoic acid have the properties of salicylic acid?

Mr. KREMERS. It has the same acid properties as salicylic acid.

The CHAIRMAN. What properties does it have in common with boracic acid?

Mr. KREMERS. Formerly all chemical substances were classified into acids, bases, and salts. According to this classification the three acids would come into the same class, boracic, benzoic, and salicylic. But this classification is no longer in vogue, because it does not bring out the proper relationship between compounds.

Mr. BARTLETT. You said that some association of chemists had recommended or had approved the use of this benzoic acid. What association is that? Is it the Association of Official Agricultural Chemists?

Mr. W. D. BIGELOW. It is the standards committee of the Official Agricultural Chemists, composed of the official chemists of the various States.

Mr. BARTLETT. That is the same body that is referred to in this bill that we are considering?

Mr. RICHARDSON. I understood Mr. Williams to say yesterday that this acid was found in the product in very small quantities. Now, can you tell scientifically, with any degree of accuracy whatsoever, what kind of effect that acid is going to have upon the human system?

Mr. KREMERS. I have here a statement which was prepared by physiological chemists and physiologists who have investigated that matter, and I would say that I have examined the best literature in the three languages, English, French, and German, and I have yet to find a statement that benzoic acid administered even in medicinal doses would produce harm.

Mr. RICHARDSON. You know as a fact, don't you, that different temperaments in the human family are likely to be effected in different ways by different kinds of food?

Mr. KREMERS. Yes, sir.

Mr. RICHARDSON. You can not make any accurate provision as to how certain acids will affect a certain person. It might not affect me at all and it might affect you very seriously.

Mr. KREMERS. Yes; that is true. I have known people who could not eat strawberries.

Mr. RICHARDSON. Or cranberries.

Mr. KREMERS. But that does not prevent us from eating strawberries and cranberries.

The CHAIRMAN. You have been giving some special attention to this subject of benzoic acid as a preservative, have you?

Mr. KREMERS. I would like to state just what I have been invited to do. I have been asked as a plant chemist, for that is my specialty in chemistry, to find out what could be learned about the occurrence of benzoic acid in the vegetable kingdom, and also to find out what the best literature, the physiological and therapeutic literature on the subject, had to say with regard to the administration of benzoic acid to the human system and with regard to the course that it took in the human system. That is the extent of my knowledge on this particular subject. I have not gone outside of that.

The CHAIRMAN. Is there an employment in connection with this matter by you?

Mr. KREMERS. I was employed; yes, sir.

The CHAIRMAN. By whom?

Mr. KREMERS. By Mr. Grosvenor.

The CHAIRMAN. What Mr. Grosvenor?

Mr. KREMERS. Mr. Grosvenor, of Detroit; Mr. Elliott O. Grosvenor.

The CHAIRMAN. Was there a compensation fixed?

Mr. KREMERS. Yes, sir.

The CHAIRMAN. Have you any objection to stating it?

Mr. KREMERS. No.

The CHAIRMAN. Will you do so?

Mr. KREMERS. I was to do a month's work in looking up this literature and ascertaining, if I could, the presence of benzoic acid in vegetable organisms, and for that month's work I was to receive a compensation of \$300. Do you want to know what compensation I received for coming here?

The CHAIRMAN. If you please. We simply want to know whether you appear as a scientist purely or as an advocate.

Mr. KREMERS. I have nothing to conceal, gentlemen. When asked whether I would come here to present to you gentlemen such information as I could find, I said that I should be willing to come here for a day at the compensation of \$100 a day while actually doing duty in Washington, and to receive the expenses of my trip.

Mr. TOWNSEND. I would like to ask you if you were instructed to find one side of the question, or whether you were instructed to find the whole truth, or whether you have stated all that you have found on this subject.

Mr. KREMERS. I was simply told to find what I could, and say what I conscientiously could. I should not sell myself for any sum of money to find something that was wanted to be found or state anything that I did not want to say.

The CHAIRMAN. We do not imagine, Professor, that there was any imputation of that kind; certainly not in the questions that were put to you.

Mr. RICHARDSON. The service, in my opinion, is high evidence of your ability.

Mr. TOWNSEND. You were to give a report, were you?

Mr. KREMERS. I corresponded with Mr. Grosvenor, and if you were to inspect my correspondence I dare say that you would find very little in it. I told him in a general way yesterday evening what I had found.

Mr. TOWNSEND. After you reached Washington?

Mr. KREIERS. After I reached Washington; yes, sir.

The CHAIRMAN. It may be that we would like to prolong this investigation through some portion of the to-morrow sitting, and I would be glad if you would be here to-morrow, if you can.

(Adjourned at 12 o'clock noon.)

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Friday morning, February 16, 1906.

Called to order at 10.35 a. m.

STATEMENT OF HON. WILLIAM E. MASON, OF ILLINOIS.

The CHAIRMAN (Hon. J. S. SHERMAN). You may proceed, Mr. Mason.

Mr. MASON. Mr. Chairman and gentlemen of the committee, I represent here more particularly Mr. Meyers, the editor of the American Food Journal, who has prepared a bill, and which has been introduced by our Congressman from Cook County, Ill., Mr. Lorimer.

The CHAIRMAN. We have determined to consider the Hepburn bill.

Mr. MASON. I want to make a brief statement in connection with the Hepburn bill.

So far as I am personally concerned, and Mr. Meyers also, we are very anxious to help in any way that we can to advance the subject of pure-food legislation. I have given the matter considerable thought myself for many years, but since I have been a statesman out of a job I have lost track of some of the lines on legislation; and, without taking the time of the committee to read this bill—I think you are all familiar with it—I will say that this bill proceeds upon the line that the States—the several States—give to Congress, or rather by this bill Congress takes the power to regulate food under the interstate-commerce act, but differing from the Hepburn bill. When the goods reach the borders of a State, then they have to go in under the State law, and the Congress adopts as a part of the national law the State law regulating the sale of food within the boundaries of the State.

Mr. ADAMSON. That is what the Hepburn bill does.

Mr. MASON. I want to say to the committee that we are very anxious to have some legislation passed, and that we have been so busy trying to pass our own bill that we have had no disposition to find fault with any other bill, excepting that we want to present this bill and to show at least the indorsement by a large number of disinterested people in the different States. And I want also to call the attention of the committee to what seems to me the fairest and best plan for taking up this subject.

As I have said, it does not leave within the power of the United States Government, by its Department of Agriculture or any other Department, the right to interfere in any way with the regulations of the State laws; and it does not provide for the establishment of the standards by the different State food commissions. We claim,

as a matter of justice and fair dealing, that it was the intention of the framers of the Constitution that the regulation of the sale of food products is a part of the police powers of the States, and that it should be left in the hands of the States. In other words, what would be a good standard for Alabama or Mississippi might not suit in Illinois.

There might be climatic reasons for having a different standard; there might be other reasons—commercial reasons; and there might be an honest difference of opinion among the different State food chemists, as there is here, as to what is pure and healthful food. If you will read the bill which Mr. Lorimer has introduced, you will find that it will reach positively the end to be gained, and, at the same time, not deprive the States of the right to regulate, by their own power, the police regulations within the State. I want the committee to know that this bill has had the consideration of different eminent people, and I will leave here with the committee, subject to the inspection of the full committee, or any subcommittee, some indorsements. The State dairy commissioner of the State of Colorado, living in Denver, says:

I am greatly in favor of the American Journal's proposed national pure-food bill, as I think it meets every requirement, and will not jeopardize the interests of the State dairy and food departments.

This bill, known as the "Lorimer bill," protects, as you ought to protect, I think, a man who is a real retailer, a man who is innocently engaged in selling foods that may be adulterated, and reaches out after the producer; and, in that particular, the committee may find that the bill is rather harsh in that it goes after a person who has sent into a foreign State—into a neighboring State—foods that have been adulterated. But there is no way, in my opinion, gentlemen of the committee, to reach the fraudulent manufacturer and the man who adulterates food or sophisticates—which is practically the same, so far as commercial honesty is concerned—except you do have some law to punish the manufacturer. The little retail dealer under the terms of this bill is protected by receiving a bond and guaranty from the manufacturer. This bill provides that the introduction into any State or Territory or the District of Columbia, for the sale or distribution therein from any other State or Territory or the District of Columbia, of any article of food or drugs which is adulterated or misbranded within the meaning of any law of the State or Territory or District into which said article may be shipped or mailed, is hereby prohibited, and any person who shall make any such shipment in violation of the provisions of this act shall be deemed guilty of a misdemeanor, etc.

Mr. BURKE. This proposition that you are asking for, would it not cause confusion by lack of uniformity? And I want to refer to a witness that testified here the other day—a manufacturer—who produced before the committee three glass vessels of strawberry preserves all made from the same kettle. The laws of Michigan, Wisconsin, and Minnesota, I think it was, are substantially the same, with the exception of requiring the labels to be a little different. And in shipping to Duluth, as I remember, he sends goods that are labeled for Minnesota. They sold some of those goods, or they went over into Wisconsin, which is close by, and violated the law of Wisconsin; and I think they were prosecuted or threatened with prosecution.

Mr. MANN. The violation being simply the lack of a proper label.

Mr. BURKE. Entirely in the label. Now, what have you to say as to that proposition?

Mr. MASON. I say this, that in the enactment of any national law when the Congress undertakes to take up a subject where they have not had special powers delegated by the Constitution, as they have, for instance, in the coinage laws and in the bankruptcy laws, you meet with some obstacle in the enforcement of every national law; and when the gentlemen who mark the jellies and jams sold in three different States with three different brands to comply with the law and to meet with all of the other embarrassments that come by doing business between the States—for instance, if he wanted to sue me in the State of Illinois he would have to proceed under the law there, and the same in Wisconsin. So that there is that objection; but it is being overcome by meetings and has, by absolute effort for some years on the part of the leading chemists of the State, to have what is known as a uniform standard for food and drugs. They are meeting in Chicago to-day.

There is something to overcome, I admit that, but it is not anything to compare, it seems to me, to the danger of attempting to regulate the sale of all food products that are shipped from one State to another under the interstate-commerce law being regulated by one power in Washington, so far away from the people who are affected.

Mr. BURKE. They require that the different labels and the packages would have to be marked also for sale in such and such a State. And would that not add to the cost of the goods?

Mr. MASON. It might, but it is upon the same theory of all other laws—that the State has power to enforce its regulations as to the police powers of the State. And when a man goes to your State or my State to sell goods he is presumed to comply with the law of that State; and while it may be true that he would have to have a different brand for the State of Illinois, and he might be compelled under the law to use a different preservative in the State of Illinois from the other States, yet the fact resolves itself again down to this question: Who is the best man, or rather where is the best place, to leave the power to protect the consumer, in the State or in the nation?

Every State within the Union now, within the past ten years, has passed pure-food laws and established commissions. Those commissioners are bound to take jurisdiction of all food manufactured and prepared for sale within the State; the machinery is already established, and if the power of Congress rests in Congress, as I think it does under the decision of the Supreme Court, to regulate within the Territories where the Congress has the sole legislative power, as they have in the District of Columbia and in the Territories, then you can adapt one organization or one machine, the national machine under this law, as I verily believe, so that it will not overcome a part of the pure-food laws of the different States. Every lawyer knows that he may try a case in Milwaukee before the United States court, and lose it upon a question of law; and go down to Chicago before the same judge sitting there, who applies the rules of his district in the application of the laws, or in equity, and win; that is, he wins in one State and loses in another. Those State boundaries are there, and we have to make the best of them. The practical solution is right here in

this fact, that for years the State chemists have been endeavoring to agree upon a uniform standard for food products, and they are very much, perhaps unduly, afraid of a national law that gives the power to one man or to one department to fix a standard and fix them all uniformly.

Mr. BARTLETT. The legislatures of the various States have been interested in undertaking to pass laws so as to have uniformity in these foods, numbers of them.

Mr. MASON. Oh, yes.

Mr. BARTLETT. My State and numbers of the other States are trying to make them uniform.

Mr. MASON. I have a number of indorsements here, and while I do not, as a rule, offer individual indorsements as a reason for appealing from the judgment of the committee or a court, I will say that I think that you should know how this bill strikes people who have been interested in the matter, and have given it study for several years. Here is a letter from Mr. Noble, president of the Association of Food Commissioners of the United States. Of course, what we are all after is to prevent the adulteration of foods, and here is what Mr. Noble says:

Personally I am heartily in accord with your idea in regard to the national pure-food law and the bill, a copy of which you sent, seems to cover all the points necessary.

I want to say to you further, in answer to your question, that you meet a much more dangerous thing when you establish a Government standard, when it comes in conflict with the local law, and in my opinion, and, I think, in your opinion too, that if the Government standard should fix the standard of so much caffeine in coffee, so much acidity in vinegar, so much percentage of malt in beer, when the Government had fixed these standards, and the goods have been transported from one State into another, and they conflict with the State laws, under the decision of the Supreme Court your bill must fail, and, I think, the State laws will take its place.

Mr. RICHARDSON. Don't you believe that if the Government fixes a standard all of the States desiring to do right in matters of this kind will be willing to make their laws correspond with the Government law?

Mr. MASON. I did think that way for a long time, but since I have seen the evident desire of State commissioners to have their ideas adopted, I have changed my mind.

Mr. ADAMSON. If the State thought that its authority and its plans were better, and knew that the Federal authority was not up to their view, they certainly would attempt to make the laws their way.

Mr. RICHARDSON. I am in favor of uniformity of Federal legislation on the subject.

Mr. MASON. In other words, if the State of Alabama, Georgia, or Illinois wanted a certain standard that suited the people there, and the Government of the United States fixed a different standard, a lower standard—putting it that way, if you please—we would have to adopt the lower standard fixed by the Government rather than the higher standard fixed by the people who are nearest to the operation of the law.

Mr. RICHARDSON. You could not get rid of the statutes of Alabama; therefore you would bring about direct conflict by the 45 States

of the Union against the standard of the Government, and you could not accomplish anything by Federal legislation.

Mr. MASON. That is a reason that these far-seeing men who have been working in the matter—the pioneers—for years have adopted these views. The argument for this national legislation known as the "Hepburn bill" is a strong argument—that is, for a uniform and fixed standard—but there would be greater embarrassment arise if that became the law—embarrassments that would make a greater conflict than if it were left to the States. I want to say that some of the most learned men in the United States, and the most expert men employed by the different States, have given their time to this very subject. Of course, when a State law is passed the State food commissioner fixes those standards.

Mr. RICHARDSON. Isn't the sole known object of this legislation not to keep anybody from selling anything at all, but to make them tell the truth about what they do sell?

Mr. MASON. I am for that proposition, and have been for years; but you go a step further. Congress delegates this power to fix, in the Agricultural Department, a certain standard upon which the chemists of this country, the leading chemists, do not agree with Doctor Wiley. Now, I have no fault to find myself with Doctor Wiley; I have worked with him in this matter, and I believe that he is working hard and faithfully to accomplish some good in this matter of legislation.

Mr. MANN. You agreed with him when you were in the Senate.

Mr. MASON. I have always agreed with him that we should have some legislation.

Mr. RICHARDSON. Whom do you think we ought to have?

Mr. MASON. I think you ought to leave every State to adopt its own laws and to attend to its own business.

Mr. TOWNSEND. Whom do you appear for?

Mr. MASON. I appear for the gentleman who drew this bill, who is editor of the Pure Food Journal in Chicago, and who has given a good many years of his time to this subject.

I have some letters here from the different State commissioners; letters of indorsement of this bill—

Mr. RICHARDSON. Those are principally food commissioners of the different States, are they not?

Mr. MASON. Yes, sir.

Mr. RICHARDSON. Have you heard from the manufacturers?

Mr. MASON. I have only heard and only know what I saw in the papers of to-day and of yesterday. The manufacturers have another bill, but I have not had the opportunity to read that bill.

Mr. RICHARDSON. Nobody has asked you to appear directly for them?

Mr. MASON. Oh, no.

Mr. ADAMSON. Isn't the chief complaint of the people who support pure-food legislation that the people are imposed upon in getting one thing when they think they are buying another?

Mr. MASON. That is the gist of the whole matter.

Mr. ADAMSON. Are there not provisions in all the States for punishing frauds through false representation of that sort?

Mr. MASON. That is true, sir; but you know it is like an obsolete statute that is not enforced. Since we have had our pure-food com-

mission in the different States they have been enforcing statutory law—

Mr. ADAMSON. You say it is obsolete. Do you mean, to punish common cheats and scoundrels?

Mr. MASON. In the matter of food products. When I had the honor of being chairman of a committee of the Senate, I called men before the committee who had knowledge of particular subjects, and I remember one man had a preservaline which he made and colored with an analine dye and sold to be used in the preservation of milk. Another man appeared before the committee and told of the adulteration used in spices, mustard, and things of that kind, every one of them a violation of law, and he could have been prosecuted; but the people have now waked up to this subject.

Mr. RICHARDSON. In how many States of the Union are the food laws what may be called dead letters, as you referred to them a while ago?

Mr. MASON. I do not think there are any of them since they have passed the pure-food laws. I am talking about the common-law right.

Mr. ADAMSON. In what respect would an official be any more liable in any community under any law than the State statute?

Mr. MASON. I am here pleading for the State statute, because I believe it is the most practical. I believe in the matter of the sale of all foods within the Territories or the District of Columbia, or within the territory that the Constitution fixes, Congress shall have the sole power of legislation; that you should pass an act similar to this Lorimer bill, which will not only control it in the matter of transportation under the interstate-commerce clause, but control it by reason of the fact that you are the legislators of this territory.

Mr. TOWNSEND. As I understand it, this is for the purpose of enabling the commissioners of the State to preserve the power which they now have.

Mr. MASON. That is the truth about it.

Mr. MANN. The power and their offices.

Mr. MASON. They are bound to keep their offices.

Mr. ADAMSON. I want to say that that is not true in some States. Mr. Mann's opinion about the commissioners of some States trying to hold their offices would not hold good in some of the States that I know of. Is it not true that in some States they know more about running the food business than the Federal Government?

Mr. MASON. I think that Mr. Mann was speaking rather in the spirit of fun, because in Illinois "once in office always in office."

Mr. RICHARDSON. Are you representing the food commissioners of the different States?

Mr. MASON. No, sir; I am not.

Mr. RICHARDSON. You are opposed to national legislation?

Mr. MASON. No, sir; I am not. I have stated that I am in favor of this Lorimer bill, which gives power to this Congress to legislate as to all foods manufactured or sold within the Territories or the District of Columbia, where you have legislative jurisdiction as contradistinguished from State jurisdiction. Then, that you control it in matters of transportation up to the State line; and that then these pure-food commissions having been organized, and the national law under the Constitution having to yield the matters of conflict

between these two laws when the food passes over the State line, it is taken possession of by the State law.

Mr. MANN. As I understand your position with reference to the constitutional matter, it is that the protection of public health and safety does not apply through the Government to the States, and that we can not take jurisdiction of it under the interstate-commerce clause, and for that reason our law would fail when it came in conflict with the State law.

Mr. MASON. Yes; and the Supreme Court has decided in the Iowa case that when they pass a law that certain goods that went into bond in the State became subject to the laws of the State, that that was not a delegation of Congressional authority to the State, but it was the adaptation by the Congress of the laws of the States in existence. It says to the State: "Don't you take care of these food products; we will establish a standard for that, where we have legislative jurisdiction." You have the State organizations already made. This does not dispense with any office. We have our pure-food commissions, because that regulates the manufacture of food that is sold in the States.

Now, then, you propose by national legislation to establish machinery in Washington to do the same thing for the State of Illinois that we are already doing.

Mr. ADAMSON. Wouldn't that, in some instances, prevent people from having as good food as they have been having?

Mr. MASON. Possibly so, but—

Mr. RICHARDSON. Don't you think the result, the logical result, of the position that you assume in this matter would be that to a manufacturer, for instance, in the State of Illinois, in shipping his goods to Maine, Massachusetts, and other States, he would be liable to different constructions by the different State commissioners that they would make upon the statutes of similar purport? He would have to comply with those different constructions; and would it not hamper them greatly, place an embargo upon their business, by reason of the want of uniformity in the construction by the different State commissioners of statutes of a similar character?

Mr. MASON. When a man approaches your house to sell goods, he complies with the ordinary rules of your house. When he comes to Illinois to sell goods, there are the statutes, and there are the laws, and I say, let him comply with those laws. If he wants to collect a debt, if he wants to get a divorce, if he wants to do anything within the power of the State, he has to comply with the laws of that State. Congress has no power there.

Mr. RICHARDSON. Do you think that is a fair illustration when applied to a matter that is so generally indulged in as the consumption of food?

Mr. MASON. I think it is fair. If a man brings goods into the State of Illinois, we say that there must be marked on the outside what it is; if it is vinegar, the acidity that is present. If he comes and lays his goods down, he ought to be prepared to comply with the law, and he will have to do that anyway, whether you pass this bill or not; and I want to say that no Government standard will stand between the courts of the State, or the Supreme Court of the United States, when it conflicts with a police regulation fixed by a State which under the Constitution has that power.

Mr. RICHARDSON. I agree with you on that. You can not prevent a State from acting in a matter of that kind, but the Federal Government has its functions under the interstate-commerce clause in matters like this.

Mr. RUSSELL. Suppose that Congress has a right under the interstate-commerce clause to pass an act—a law—which does conflict with the police regulations of the States. Don't you think that the police regulations will yield in that instance?

Mr. MASON. No; that is not law, as I understand it. Congress gives licenses to sell whisky every day, but they can not sell a drop of it until they comply with the local laws where they are attempting to sell it.

Mr. RICHARDSON. You say that Congress gives licenses to sell whisky, and that they can not sell it unless they comply with the local laws?

Mr. MASON. Yes; that is what I say.

Mr. RICHARDSON. You are mistaken about that. In my State there is complaint right now that Congress under the revenue laws to-day is licensing men to sell whisky in Alabama, where there are prohibition laws prevailing.

Mr. MASON. Certainly they give the license, but they can not sell.

Mr. RICHARDSON. They do sell, and they call them "blind tigers."

Mr. RUSSELL. Are not the laws made in pursuance of the Constitution—the supreme law of the land?

Mr. MASON. Any law passed by Congress, within the jurisdiction of Congress, within the powers reserved to Congress by the Constitution, is supreme, and next to the Constitution itself, and would govern; but you can not pass a law made in pursuance of the Constitution which regulates a police power in the State of Illinois and permits anything to be done which the police powers prohibit.

Mr. RUSSELL. The proposition which I advanced is this: Suppose the act of Congress is in conformity with the power of the State, but incidentally interferes with the police regulations. Which would yield?

Mr. MASON. But you admit that the matter of regulation of the sale of pure food was not a power reserved by Congress or given to Congress by the Constitution.

Mr. BARTLETT. There is one suggestion I want to make to you on that point, and that is, that the Congress of the United States, in the administration of the internal-revenue laws, authorizes and will issue a license to any person to manufacture whisky or brandy by complying with certain regulations, paying a license tax, and putting on the words "Licensed distillery;" yet, under the laws of States, my State, in many counties, the legislature of the State has prohibited the manufacture of whisky or beer, or liquors of any kind, in these counties.

Mr. MASON. The Supreme Court has sustained the State law.

Mr. BARTLETT. Yes; both the State and the United States Supreme Court.

Mr. RICHARDSON. Where does the difference come in when the Government gives the license to retail whisky?

Mr. MASON. I am telling you the same thing. Suppose the internal-revenue commissioner gives a license to a man to sell whisky in the

city of Chicago, and he does not comply with the State laws, can he sell?

Mr. RICHARDSON. Where the Government grants a license to sell liquor down in Alabama, and issues that license, it doesn't make any difference at all, at least in the way of enforcing it down there. It does not make any difference if it is a prohibition district, they go on and sell it, and there is great complaint among those people.

Mr. MASON. You should refer them to the Iowa case, and they will know how to right that.

Mr. ADAMSON. You know there is a great deal of trouble in relation to confusion of terms. Have you ever looked at one of these papers to see whether it is a license or a receipt for a tax?

Mr. MASON. Of course it is denominated a license.

Mr. ADAMSON. Who did that?

Mr. MASON. The Government receives from John Smith, say, \$25 for the special tax, and is given the privilege of selling liquor, and so on.

Mr. ADAMSON. But isn't it true that the Government does not undertake to license anybody, but simply says that if the business is allowed in a State he must pay this revenue to the Government?

Mr. MASON. That is the theory of it, of course. In many cases they have been fined for not complying with the law of the State when they had a Government license tacked up over their door.

Mr. MANN. It being conceded by everybody, I think, that the Government has no power over the police regulations of the States as to the pure food after it goes out of the original packages in the States, isn't it still desirable that the Government should endeavor to fix a standard of foods, and obtain the cooperation of the States, so that as far as possible and practicable all of the States shall have the same standard?

Mr. MASON. We think the Government can not do it as well as the people can themselves, because you can not force upon the State of Illinois a certain standard if we have legislation which insists upon another standard.

Mr. MANN. Assuming that you can not force it, isn't it desirable that you endeavor to obtain it through cooperation?

Mr. MASON. That is it exactly; that is just what we are doing.

Mr. ADAMSON. Wouldn't the Government accomplish that better and go further by simply applying its great power and diffusing information on these subjects?

Mr. MASON. I think so, as to where you have the sole legislative power, as you have in the District of Columbia and the Territories; there you ought to have some food regulation.

Now, here is a letter from Mr. Redfern, who is the chemist for the Nebraska food commission. He says:

It seems to me the bill proposed by the Food Journal is more adequate than the one now before Congress, for we are certainly not in favor of forcing upon the States standards which they do not desire. We are anxious to get a national food law so that Nebraska can fall in line with the other States in having a law against such wholesale adulteration of foods as is now practiced in the State. Having no efficient law in Nebraska, I feel rather incompetent to suggest any amendments or changes in the bill, and trust that those who have been working in States where they have a broader law will use their efforts in getting a law passed which will be more in accordance with the desires of the State food commission.

Here we have a letter from Mr. Washburn, the State dairy commissioner of Missouri. He says:

So far as I can see the law proposed by the American Food Journal is just what we need and covers the ground well. I could not suggest any improvement unless it be a clause making it a misdemeanor to remove, cover, or efface said word "adulterated" before the contents of the package is all sold to the consumer. This is to prevent double wrappers, etc.

That amendment has been suggested.

Here is a letter from Mr. Slater, the commissioner of Minnesota. He says:

I can really see no great objection to the present bill before Congress. I think the American Food Journal's bill covers the ground better and perhaps would work out better in practice. It is my opinion that if there are a multitude of bills introduced we will have very little chance to secure the passage of any of them. It will be necessary for all those interested to pull together for the success of one bill and have that amended so that it will cover the good points of all of them.

Here is another letter from the secretary of the State board of health, at Boston:

I beg to acknowledge the receipt of your note of January 26 concerning a national pure-food bill. I am somewhat doubtful of the value of correspondence at this time with Senators and Representatives from Massachusetts. I shall be very glad to help along whatever bill commends itself to the wisdom of the Senate and the House of Representatives, although the State of Massachusetts does not need the protection of a national bill, inasmuch as the State laws on the subject are more strict than any of the bills that have been presented in Washington.

Now, I may differ with some of you, but I believe in national legislation of this kind. Not only will it cover that territory where you have legislative jurisdiction, but will protect those in some of the States that have not State laws. With the Hepburn bill I think that the Government will lose jurisdiction when it reaches the State line—conflicts with the State law.

Here is something that I wish to insert from the commissioner of agriculture of New York:

ADDRESS OF HON. F. J. H. KRACKE, COMMISSIONER OF AGRICULTURE OF NEW YORK.

Mr. KRACKES Mr. President, ladies, and gentlemen, I came to this convention from New York to listen and to learn. When I came here I found that I was on the programme to discuss a subject that was to be presented by Commissioner Jones, of Illinois, and other than that I have had no intention to take part particularly in this convention beyond that of being a listener and of taking away from here anything and everything that might be good for us to use. We are great absorbers in our State. We absorb and take unto ourselves all things that are good. We sometimes lose them. Two gentlemen that are members of this convention tell me that they formerly came from the State of New York; one of them I am looking at now—our friend from Wyoming.

Now, the question upon which our president asked me to say a few words—before I delve into it just lightly I will say that I am sorry that I must talk after the gentleman from Ohio, Commissioner Ankeney, because I was out of the room. I have some very decided views on a national pure-food law, and the things that I may say I am saying without knowing what he has said on the subject, as I did not hear him speak.

I have heard with interest the discussion of the commissioner from Illinois, Mr. Patterson, and Mr. Tartar, of Oregon, and it is one that I am particularly interested in, for the milk supply for our city of New York is a great one. There we receive the milk mostly in 40-quart cans, as you know, and during the past year we received between fourteen and fifteen million 40-quart cans. That would make quite a large volume if it was all in one batch.

The other day I read an expression of a prominent writer as to his idea of life. Life may be good or bad, as our friend from Illinois has expressed it, by having been the eater of good food or bad food. There is a good deal in it, while some of us smiled when he said it. I took up this description of what a good life was, and then came to me a thought that I will speak of subsequently; but I want to just read to you the expression of this writer's idea of life: "To be glad to live because it gives you the chance to live and work and to play, and to be satisfied with your possessions, and not contented with yourself until you have made the best of them; to despise nothing in the world except falsehood and meanness and to fear nothing except cowardice; to covet nothing of your neighbor except his kindness and his good will." That is a beautiful expression of what life can be, if you eat good food, but I can readily imagine how, if you had bad food, you could not live up to the standard expressed by this eminent writer.

A national food law is all right. It is a good thing to have. I have been in Washington several years. I went down there when Congress was in session in behalf of the pure-food law. It finally drifted into what is now known as the Heyburn bill. We had several propositions. There were two or three bills there, and, altogether, a national pure-food law is, no doubt, desirable. But what can be done with a national pure-food law without effective machinery to enforce it, as compared to an able and forceful combination of the dairy and food commissioners of the various States working together with a singleness of purpose, not with envy to beat one or the other to get some temporary advantage, but to help this one or that one, and to be also willing and able to receive the same courtesy in return without feeling that it is an affront.

The Federal Government has given to it only certain power—the power to collect taxes, to regulate commerce between the various States and Territories, to maintain post-roads, and to make war. Those are the only four things that the Federal Government can do. That is the only power given to it by the States that form this federation. The Federal Government may have 20 food laws, withal it can not go within the State where there is adulteration going on. If the product does not enter into interstate commerce, the United States Government can not interfere in any way, shape, or manner. The State is sovereign, and should be so. I agree with our southern friends to maintain a stand for State sovereignty and State rights. I believe they are absolutely right on that proposition—that is, on that line.

A Federal law, if there is to be a Federal food law, is good so far as it will help the work of the various dairy and food commissioners in their individual States and assist in the interstate commerce or the traffic between the States; but it should be only as a convenience to regulate or to connect, as it were, and not to supersede the State and be the great "it." I speak of this, not because I fear any Federal law as it will affect our State, the State of New York, or perhaps any other State, because the food law in our State is of recent enactment. It has only been upon our statute books for about two years. We are really in our infancy in that work. It was formerly in the hands of the State health department. So my remarks on this line are perfectly free and unbiased, but I state that as a matter of experience. I have been in this work for many years. I have been, as I stated before, in Washington laboring for the tax on oleomargarine for the last four or five years. I appeared before the various committees, as did also the former commissioner from Wisconsin, now Congressman Adams. He and several of us labored quite hard on that matter, and he also took the laboring oar in the pure-food matter.

Here is a letter from the health officer, Dr. W. C. Woodward, of Washington:

I beg to invite your attention to the accompanying copy of correspondence relative to pure-food legislation. The statements embodied in my letters printed in this correspondence represent my views on this subject.

That is his letter. That to which he made reference is as follows:

In an interview with Senator Heyburn, which appeared in the Washington Post of Monday, April 10, 1905, he is quoted as follows:

"The necessity of a Federal pure-food bill is almost obvious," said Senator Heyburn yesterday. "Every State, save perhaps one, in the Union has adopted more or less efficient legislation of this character, and the prevention of the manufacture and sale of misbranded or adulterated drugs, foods, and liquors

would be complete were it not for the 'unbroken package' decisions of the Supreme Court, under which one State is practically powerless against the importation of this class of goods from another State.

"The fact that the various State legislatures have adopted pure-food bills demonstrates that the people are alive to the necessity of such legislation, and the one link necessary to perfect the chain is a Federal bill which will cover interstate commerce, over which the States can exercise no jurisdiction.

"Under existing conditions the States can, and in most instances have, enacted laws which protect their citizens from the manufacture of spurious goods within their own borders and from the sale of goods so manufactured; but the so-called 'original package' holding of the Supreme Court renders it impossible for them effectually to protect their citizens against impure foods and food products manufactured in sister States."

Senator Heyburn thus succinctly and clearly states the only necessity which exists for a Federal pure-food law.

It is generally conceded that the citizens of each State ought to have the right to say what kind of foods they want to eat and by what standards of purity the foods which they eat shall be measured, and they should not be dictated to on this subject, either by the citizens of any other State or by the Federal Government.

Every pure-food law must of necessity be construed in the light of some standards, and a Federal pure-food law would naturally be construed in the light of the standards of purity now being promulgated by Doctor Wiley and his food standards committee.

The National Association of State Dairy and Food Departments at its last annual convention, which was held in Portland in July last, decided, with no objecting votes, that the standards of purity which have been adopted by Doctor Wiley and his committee, and promulgated by the Secretary of Agriculture, were impracticable and improper, and that the standards under which food laws should be enforced should be established by the State commissioners, and not by the Secretary of Agriculture.

Should there be a national law enacted which would attempt to regulate this subject, there would of necessity be a conflict between the national laws and the State laws, both as to the law itself and the standards of purity under which the law would be enforced.

Periodicals and people who have been discussing the pure-food problem have been talking as though a national law would supersede and wipe out the State law, when such would not be the case, though it would have the effect of interfering materially with the State work.

Unless the State laws and standards of purity should then be changed so as to conform exactly to the Federal law, the result would be that while a manufacturer in one State would label his packages so as to conform to the Federal law, such packages so labeled might still be unlawful under the laws and standards in force in the States; and if he should attempt to label them so as to conform to the laws and standards of the State into which he is going to ship them for sale, they might be unlawful under the Federal laws, so as to make him liable to fine or forfeiture for shipping from one State to the other.

The National Association of State Dairy and Food Departments is organized to secure uniformity of action as between the States, and the only restriction or obstacle in the way of a complete and satisfactory regulation of the subject by the respective States is, as is aptly said by Senator Heyburn, the fact that under the interstate-commerce clause of the Federal Constitution foods and drugs in the "original package" can be sold in the respective States in defiance of the State pure-food laws.

All that is needed, therefore, in the matter of legislation on the part of the Federal Government is to remove this restriction upon the action of the respective States, and the entire question is solved to the satisfaction of everybody except those who have been promised or were expecting office under a Federal pure-food bill.

This may be accomplished by an act of Congress in the form of a bill which is hereto attached, and by this suggested bill not only is the restriction upon the States removed, but the States are given the assistance of the Federal Government in the only form in which they need such assistance.

The bill speaks for itself and is drawn in conformity with the decisions of the Supreme Court of the United States in the cases of *In re Rahrer* (140 U. S., 545) and *Rhodes v. Iowa* (170 U. S., 415).

In the former case (*loc. cit.*, 564) the court, in referring to the identical language which is employed in this suggestion, said:

"Congress did not use terms of permission to the State to act, but simply removed an impediment to the enforcement of the State laws in respect to imported packages in their original condition, created by the absence of a specific utterance on its part.

"It imparted no power to the State not then possessed, but allowed imported property to fall at once, upon arrival, within the local jurisdiction."

And in the latter case, in speaking of the same language, the court said (*loc. cit.*, 420) :

"It is not gainsaid that the effect of the act of Congress was to deprive the receiver of goods shipped from another State of all power to sell the same in the State of Iowa in violation of its laws."

The proposed bill, therefore, covers all the necessity, stated by Senator Heyburn, to exist for a national pure-food law. It enables each State to carry into effect, without any restrictions whatever, so far as the interstate-commerce clause of the Federal Constitution is concerned, its own pure-food laws, and it gives Federal assistance to the extent of punishing a man who ships from one State to another any goods which are adulterated or misbranded within the meaning of the pure-food laws of the State into which they may be shipped, notwithstanding the fact that they may remain in the original packages.

With this impediment and restriction removed, so that the States can act freely and fully, there is no reason why an extensive bureau with an army of inspectors should be built up under the Federal law, when the States are already properly equipped to carry on this work, or why a possible conflict between the State and Federal laws should be invited.

The American Food Journal's national pure-food bill is drawn in the interest of the consumer, not of the unscrupulous manufacturer. Other bills are admittedly full of "jokers," protecting various industries.

The American Food Journal's national pure-food bill is inexpensive in operation, requiring only the machinery already in operation in the States. Whereas the other bills, should any of them become a law, would require a large corps of chemists, inspectors, and other experts, who would be compelled to travel back and forth across the continent in order to prosecute cases in court.

The American Food Journal's national pure-food bill affords protection to the innocent retailer by enabling the State food commissioner to reach the guilty manufacturer, even though conducting business outside of the State. The dealer also will not require a "guaranty" from the manufacturer in order to avoid punishment for selling goods for which he should not be held responsible.

If the Heyburn or Hepburn bills become a law, it would require double labeling of all foods—to comply with the national law and to comply with State laws.

The Heyburn and Hepburn bills are autocratic, placing the commercial interests as well as the consuming public helplessly in the hands of the father of the bills, Dr. H. W. Wiley, of the Agricultural Department. The original Brosius bill provided for a scientific and expert commission to formulate rules, definitions, and standards, and in this respect was superior to its successor.

The Heyburn and Hepburn bills would discourage instead of encourage the formation of effective food laws by the States, and allow adulterated, unwholesome, and misbranded goods manufactured and sold in a State to be consumed by its people, not alone to their own detriment, but in unjust competition with pure goods shipped in from other States.

OPEN LETTER ON THE HEPBURN BILL.

[By William C. Woodward, M. D.]

William C. Woodward, M. D., health officer for the District of Columbia, in reply to a communication signed by William Frear, H. W. Wiley, E. D. Jenkins, H. A. Weber, and M. A. Scovell, committee on standards of the Association of Official Agricultural Chemists, to the honorable Commissioners of the District of Columbia, in which they urge that that body not oppose the pure-food bills then pending, the Hepburn and McCumber bills, even should they alter the method of the execution of a pure-food law in the District of Columbia, writes the following letter, as printed in a Senate document on the District of Columbia.

The arguments advanced by Doctor Woodward are just as convincing against the Heyburn and Hepburn bills as they were against their prototypes two years ago, and should be read carefully. The letter is as follows:

HEALTH DEPARTMENT, DISTRICT OF COLUMBIA,
Washington, January 6, 1903.

The honorable COMMISSIONERS OF THE DISTRICT OF COLUMBIA,
Washington, D. C.

GENTLEMEN: Referring to the letter of Mr. William Frear, chairman of executive committee of pure-food congress, and others, dated January 5, 1903, relative to certain "pure-food legislation" now pending in Congress, and to the recent communication of this office concerning the same, I have the honor to submit the following report:

"It is true, as stated, that the health officer of this District was a member of the national pure-food congress. It may even be admitted that he was a more or less influential member of that body, in view of the fact that he secured the insertion in the bill prepared by it of a proviso which protected the sanitary interests of the people of the District of Columbia. Whether the health officer did or did not approve of the bill as drafted can be judged from the fact that he deemed it his duty to have the District protected from its operations in the manner above stated.

"The health department has approved none of the so-called pure-food legislation which Congress has recently been so strongly urged to enact. It has, however, not felt called upon to oppose such legislation so long as the interests of the District were not involved. The letter recently addressed by the health officer to the Commissioners relative to such legislation explicitly recommended 'that the Commissioners, without committing themselves generally either for or against any of the pending legislation for the regulation of traffic in foods and drugs, take such action as may be necessary to secure the exemption of the District of Columbia from the operation of such legislation as may be enacted.'

"Whether the pending pure-food legislation will, if enacted, repeal all or merely a part of the laws now in force in this District relative to such matters is not yet apparent, even after a most painstaking examination of such legislation; and in view of the fact that the writers of the communication now under consideration have failed to state any reason for their opinion that it will not repeal such legislation except in so far as relates to interstate commerce, the health department must decline to accept such opinion.

"If the enactment of the pending legislation were likely to result in such incalculable benefit to 80,000,000 people, as suggested by Mr. Frear and his associates, and it were impossible to amend it so as to duly protect the interests of the 300,000 citizens of this District, the health department would hesitate long before taking any action that might hinder or prevent its enactment. The department has, however, never been able to discover the enormous benefits to be derived from the enactment of this legislation, and is quite confident that in any case the proposed proviso exempting the District from its operations will in no way impede its general efficiency. In view of the fact that by the communication submitted by the gentlemen above mentioned the general merits of such legislation have been drawn into controversy, and it is sought to sacrifice what the health department believes to be the interests of the people of this District, if necessary, to secure the enactment of this measure, the views of the health department relative to its general value may well be considered.

"(1) The object of the legislation now under consideration is to insure purity in foods and drugs sold throughout the United States, combined with uniformity of trade conditions as to standards, etc. This object is admittedly meritorious. The merits of the legislation itself, however, must be determined by the manner in which this object is sought and the extent to which it will be attained, and can not be predicted on the meritorious object for which such legislation is designed.

"(2) Each State has exclusive jurisdiction over commerce in foods and drugs within its borders. The proposed legislation can not reconcile differences between State laws, and therefore its enactment will not materially relieve dealers from the necessity of complying with the requirements of each State within which they do business.

"The jurisdiction of the State covers not only foods and drugs produced locally, but all foods and drugs from other States or from any Territory or the District of Columbia, except so far as relates to the sale of original, unbroken packages by the original consignee within the State. And even under the circumstances last mentioned the State has a certain limited jurisdiction if the food or drugs contained within the original packages are adulterated so as to endanger the health of the citizens of the State.'

"(3) The enactment of the pending legislation will merely establish in each State standards for interstate commerce distinct from standards for commerce wholly within the State, and which may or may not be identical with such standards. This, in fact, is the extent of the power of the Federal Government, so far as relates to the sale of foods and drugs in the State.

"If the interstate standard for any article is more rigid than the State's requirements, the dealer within a State can not lawfully purchase such article in another jurisdiction, except it be of a higher grade than the State requires, however advantageous it might be for him to do so. Nor can a person or corporation in another jurisdiction lawfully sell it to him unless it be of such higher grade. Each will be liable, if he does so, to fine and imprisonment under the Federal law, and this despite the fact that the substance which it is desired to import into the State might, if imported, be sold with entire conformity to the State laws."

"(4) The proposed Federal law, if enacted, will be a channel through which State laws may be evaded.

"The sale of a substance, although forbidden by State laws, may, if the proposed legislation be enacted, be made under the very protection of the Federal Government, provided only that the substance be packed and shipped from another jurisdiction so as to be sold by the consignee in original, unbroken packages; although if produced in the State it may not lawfully be sold under any condition. A producer doing business within the State will be thus subjected to unfair competition under the protection of the Federal law."

"(5) State laws will continue to be the sole protection of consumers so far as relates to the sale of adulterated foods and drugs. Evasion of the purpose of the proposed legislation will be so easy that the law itself will be merely a tax upon the ingenuity of dealers in determining methods of shipment. It will afford no protection to dealers beyond that afforded by State laws.

"The original package may be labeled in conformity with the Federal law and in keeping with the nature of its contents, while the packages within, intended for local trade, remain unlabeled, the labels, either forwarded separately by the manufacturer or prepared within the State, being affixed when the original package is opened. Or the goods, labeled in conformity with Federal law, may be shipped in bulk, while containers for retail trade, labeled in an entirely different manner, are shipped separately or prepared within the State, and filled from the original package within the State. Or the article may be shipped into the State in conformity with Federal law, and the adulterant shipped in the same manner or prepared within the State, mixture being subsequently effected within the State."

"(6) The enactment of the proposed Federal law will not reduce trade to a fairer basis than at present.

"The honest dealer may have to resort to the subterfuges mentioned in the preceding paragraph whenever State standards are less severe than Federal requirements. A dishonest dealer can resort to them whenever he desires to do so, subject merely to State laws."

"(7) The general enforcement of the proposed law will necessitate enormous expenditures by the Federal Government, with no corresponding benefit.

"Interstate traffic in foods and drugs permeates every part of the United States reached by mail and by express. The enforcement of the proposed law on anything like a fair basis will therefore necessitate the employment of innumerable inspectors, analysts, clerks, and others throughout the entire territory. The salary of these officers, together with incidental expenses, such as traveling expenses of inspectors, cost of samples, traveling expenses and fees of witnesses, etc., will be enormous. Yet, so far as each State is concerned and possibly so far as the District of Columbia and each Territory is concerned, the entire system of inspection will have to be duplicated for the protection of purely local trade."

"(8) The proposed transfer to the Department of Agriculture of entire jurisdiction over the sale of foods and drugs of all kinds and under all conditions whatsoever, throughout the District of Columbia and every Territory in the United States, will entail upon the Federal Government great expense for the accomplishment of an object almost purely local.

"It is uncertain whether the pending legislation will effect the transfer mentioned above. If it does, the objection stated holds good. If it does not, and the transfer to the Department of Agriculture extends only to foods and drugs within the District of Columbia and the Territories which are the subjects of interstate commerce, the same objections hold good which have been referred to in paragraphs 3, 4, and 7 with reference to the undesirability of

divided responsibility within the same Territorial limits for the enforcement of food and drug laws.'

"(9) Some of the pending bills are objectionable in that in providing an advisory board to assist the Secretary of Agriculture in fixing standards for foods and drugs they fail to recognize in the organization of such board the existence of State officers and boards charged with the enforcement of pure food and drug laws more or less conversant with the subject and directly interested in the establishment of Federal standards which will harmonize with those established by the several States.

"(10) The proposed legislation is objectionable in that in the prosecution of what may be quite insignificant offenses it will necessitate the more or less prolonged absence of the defendant and of the witnesses for the prosecution and for the defense from their homes and business while in attendance on Federal courts located at more or less remote points.

"(11) Some of the proposed bills are objectionable in that they delegate to an entirely unofficial and nonrepresentative association the right to select the official empowered by law with the choice of the referee in cases of disputed analyses.

"The association referred to is the Association of Official Agricultural Chemists of the United States. The constitution of this association is not fixed by Federal legislation. The conditions of membership and the rules governing the election of the president are fixed merely by the votes of the members. The professional qualifications of the president for the exercise of the authority vested in him by these proposed laws and his freedom from bias in any particular case are by no means assured.

"Analogous objections exist to the presence of the chairman of the committee of food standards of this association by force of law on the advisory board for the determination of food standards."

The reasons stated above have always seemed to the health department to be sufficient to prevent it from advocating the enactment of any of the so-called pure-food bills which have been submitted to Congress. The department would gladly have advised the amendment of these measures in such a way as to insure purity of food and drugs as sold throughout the United States, combined with uniformity of trade conditions, had it not believed that effective legislation to that end would be impossible unless the States surrendered to the Federal Government by constitutional amendment so much of their police power as relates to the adulteration of foods and drugs. Whether the health department does or does not believe such a surrender advisable, or whether it believes it better that the Federal Government should, if it can, give to each State jurisdiction over original packages, so as to make such packages and their contents subject to the general laws of the State in so far as relates to misbranding and adulteration, is for present purposes immaterial.

In view of the foregoing statement and of the facts set forth in my letter of the 30th ultimo, I respectfully renew my recommendation that "the Commissioners, without committing themselves generally either for or against any of the pending legislation for the regulation of traffic in foods and drugs, take such action as may be necessary to secure the exemption of the District of Columbia from the operation of such legislation as be enacted."

I respectfully recommend further that if the Commissioners act favorably on the foregoing recommendation, copies of this correspondence be forwarded with such letters as the Commissioners may send to Congress relative to this matter.

Respectfully,

WM. C. WOODWARD, M. D.,
Health Officer.

Mr. TOWNSEND. That was published two years ago.

Mr. MASON. About two years ago; yes. If this matter is considered by any subcommittee, I would like to have that matter read entirely.

Now, I want to give you a statement of that case in the Supreme Court, which is found in the 145th United States Statute. That decision is clear that this Congress has the power to pass general national legislation, it seems to me, along these lines. Having control of interstate commerce, you can control it along the line the same as you do under the taxing power in the oleomargarine case. But if you adopt this bill we have, then, a national pure-food law, but if you

adopt the standard fixed by the States you will put each State upon its own responsibility to take care of itself after the goods have entered the State.

Mr. BARTLETT. Wouldn't it affect the oleomargarine law? The statute gives the Government the right to exercise the taxing power.

Mr. MASON. That was the only reason why it was appealed, and the Supreme Court said that it didn't make any difference if you taxed it out of existence, the tax was only a mere matter of form to cover the regulation of food products.

Mr. RICHARDSON. Do you not admit that the tax on oleomargarine is using the taxing power to destroy one industry and to establish another, and do you think that is proper legislation?

Mr. MASON. Well, I have no vote on this subject now, and I would not want to say. Each man must answer that for himself.

Mr. BARTLETT. They taxed State banks out of existence the same way.

Mr. ADAMSON. Don't you think that the warring of different influences is at the basis of most of these demands for legislation?

Mr. MASON. Well, no; I can not say that; yet these demands for pure-food legislation are a warring of the elements. The consumer wants to know what he is getting.

Mr. ADAMSON. Are there not different manufacturers inclined to cut one another's throats?

Mr. MASON. I presume that is true. That is the commercial branch of it, and I do not know anything about that.

Mr. MANN. As I understand it, your main objection to the Hepburn bill is that you think that it does not protect the police powers of the several States.

Mr. MASON. You also understand, Mr. Mann, that I am not against the Hepburn bill if we can not get anything else.

Mr. MANN. If you will read section 10 of the Hepburn bill you will find that it absolutely protects the States in the exercise of their police powers.

Mr. MASON. The Constitution does that whether it is in the bill or not; it does not have to be in the Hepburn bill.

Mr. MANN. There is no use in making an argument against the bill on that.

Mr. MASON. I did not say that.

Mr. MANN. I understood from your argument that your main contention was that the police powers of the several States ought to be protected.

Mr. MASON. They are protected; the Constitution protects them. I said that the legislation intended in the bill offered by Mr. Lorimer carries it under the inter-state-commerce law up to the boundaries of the States, and then it proposes to leave it to the States.

Mr. MANN. But the Hepburn bill does the same thing after the goods are taken out of the original packages.

Mr. MASON. It is a question of standards.

Mr. MANN. Section 10 of the Hepburn bill expressly covers what you have been talking about.

Mr. MASON. That is a matter that you may discuss in the committee.

I did not intend to take up so much of your time, gentlemen, and I am very much obliged to you for your kindness in giving me so much time and attention.

STATEMENT OF PROF. FRANK S. KEDZIE, OF THE MICHIGAN AGRICULTURAL COLLEGE, LANSING, MICH.

The CHAIRMAN (Mr. Hepburn). Will you give your name?

Mr. KEDZIE. My name is Frank S. Kedzie.

The CHAIRMAN. Where do you reside?

Mr. KEDZIE. At Lansing, Mich.

The CHAIRMAN. What is your profession?

Mr. KEDZIE. I am professor of chemistry of the Michigan Agricultural College.

The CHAIRMAN. How long have you been engaged in that occupation?

Mr. KEDZIE. I have been engaged in the work of chemical instructor since 1880.

The CHAIRMAN. At that institution?

Mr. KEDZIE. Yes, sir.

The CHAIRMAN. Whom do you appear for here?

Mr. KEDZIE. I appear at the request of Mr. Grosvenor, who asked me to make some investigations in regard to the distribution of benzoic acid in ordinary fruits and vegetables.

The CHAIRMAN. Are you employed by him upon a compensation or salary?

Mr. KEDZIE. I am employed to undertake this investigation; yes, sir.

The CHAIRMAN. Have you any objection to stating the compensation that you were to receive?

Mr. KEDZIE. No; I have none whatever.

The CHAIRMAN. Can you state it?

Mr. KEDZIE. My compensation is practically of the same nature and amount as Professor Kremers's, who testified yesterday.

The CHAIRMAN. You have made this examination at his instance?

Mr. KEDZIE. Yes, sir; I have.

The CHAIRMAN. What is benzoic acid?

Mr. KEDZIE. Benzoic acid is an acid which is found in several of our common fruits and vegetables associated with other acids, and, as Mr. Kremers testified to yesterday in your presence, is derived primarily from distillation of gum benzoin; and latterly it has been found with the product derived from the distillation of coal tar, which, by proper treatment, yields benzoic acid more cheaply.

The CHAIRMAN. From what is the benzoic acid of commerce supplied?

Mr. KEDZIE. I think that the benzoic acid of commerce is now derived from toluene almost exclusively, which is a distilled product recovered from the manufacture of coal-tar products.

The CHAIRMAN. You say you find it in a number of fruits and vegetables?

Mr. KEDZIE. Yes, sir.

The CHAIRMAN. Do you find the other preservatives that are in common use distributed through the vegetable kingdom in the same way?

Mr. KEDZIE. Not so widely as benzoic acid. Salicylic acid is found in certain substances—

The CHAIRMAN. What substances in common use?

Mr. KEDZIE. We frequently have confectionery and ice cream flavored with oil of wintergreen.

The CHAIRMAN. But naturally.

Mr. KEDZIE. Not in the common articles of food. I can not say that salicylic acid is found as widely distributed, nor in common articles of food or fruit.

The CHAIRMAN. Is boracic acid found in any common fruits or vegetables?

Mr. KEDZIE. No, sir; not so far as I am aware.

The CHAIRMAN. Now, you may proceed as you please.

Mr. TOWNSEND. I wish, Professor, before you proceed, that you would tell us what your experience has been; I would like to know.

Mr. KEDZIE. What fits me to testify?

Mr. TOWNSEND. Yes, sir.

Mr. KEDZIE. I am the son of Doctor Kedzie, who was for forty years the professor of chemistry at the agricultural college. I was associated with him in his work, and in the line of that work I may say that when the food and dairy commission of Michigan was first established, Doctor Kedzie was the first State analyst who examined the articles of food. I assisted him in that work, and since then I have been employed sometimes to examine articles of food for this commission of Michigan at various times, so that I feel that I have had some experience in investigations of foods for the Michigan market. So far as my professional work is concerned, it has been largely what it would be in an agricultural college, the analyzing of agricultural products, the teaching of agricultural chemistry, as well as chemistry connected with general chemical instruction in the college.

I took up this matter of finding where benzoic acid was distributed among materials which I could purchase in the market. I will read these articles in about the order in which I found the greatest abundance of benzoic acid: Cranberries, huckleberries, plums, grapes (the Malaga grape), grape fruit, oranges, pineapples, carrots, parsnips, cauliflower, rhubarb, and green peppers. The amount of benzoic acid which I found present in cranberries, taking the dry material—I suppose it is common knowledge to you that when you buy a fruit what you buy the most of is water. For every 10 pounds of fruit you buy you receive about 9 pounds of water. If you will take cranberries—and I have determined this a large number of times under various systems—we find the dried substance of the cranberry contains about, on the average, one-half of 1 per cent of benzoic acid, but when we calculate it as to the wet substance, it then falls to five one-hundredths of 1 per cent on account of the water present, or, to put it differently, it is one part in 2,000. Professor Kremers yesterday spoke of the work that he had done, and you will recall that the matter was suggested in regard to Mr. Williams's testimony as to how much benzoic acid was in ketchup, and whether all of the sodium benzoate that he put in the ketchup in the process through which the tomatoes were carried reappeared in the ketchup itself.

Benzoic acid, I must say in this connection, is a volatile acid. You saw the evidences of that when a tube was shown you in which the gum benzoin had been distilled. It does not take but little temperature to drive it out. Now, the question came to me, if there is benzoic acid in the cranberry, what would stewing cranberries do with it,

whether it would take it all out or not. We all know that cranberries are strongly sour. I found that on stewing cranberries in the way that they are ordinarily stewed in making cranberry sauce that they did lose benzoic acid, so that instead of having one-half of 1 per cent of benzoic acid, as in the dried and as we have in the fresh cranberries, we had only 0.25 of 1 per cent; so that we had lost about one-half of the benzoic acid in the process of stewing. I don't know how good cooks the committee are, but in stewing cranberries the substance is not boiled a long time. It is stewed, and then, you know, it jellifies and is ready for use. In the wet cranberry sauce there is 0.02 of 1 per cent—practically half, a little less than half—of what there is in the moist cranberry before stewing.

Now, in order that I might present to you the actual amount of benzoic acid there is in cranberries when you eat them as stewed cranberries on the table, how much benzoic acid you would consume, I weighed it up and found that when you eat a good helping of stewed cranberries, as much as I like to have, you would eat one-half of a grain, practically, or, to be exact, 0.48 of a grain of benzoic acid in that dish. Now, to compare that with catsup, such as I obtained on the Michigan market and analyzed. I found in eating a tablespoonful of catsup—and that is about twice what I take on a piece of cold roast beef—that I would get 0.16 of a grain of benzoic acid; so that if you eat a tablespoonful of catsup in an oyster cocktail you consume one-third as much benzoic acid as you would get in the dish of cranberry sauce.

In analyzing the samples of catsup from the Michigan market I have found that the amount of benzoic acid varies from one part in 1,200 to one part in 2,000 of the catsup. These are the first-class goods, such as Heinz sells in Michigan, and also sold by Curtice Brothers.

The CHAIRMAN. Do you find any benzoic acid in catsup made by Heinz?

Mr. KEDZIE. Yes, sir; when it is sold in Michigan we do.

Mr. MANN. Do you find it labeled that way?

Mr. KEDZIE. The Michigan law requires that it shall be labeled with the preservative used.

Mr. MANN. Was it so labeled?

Mr. KEDZIE. I believe that it was, but I am not absolutely certain. Living at the capital, I would expect that the law would be complied with. The commissioner's office is right where I live.

Mr. MANN. I have been told that it never had been done, and wondered whether it had or not.

Mr. KEDZIE. I am sorry that I can not be absolutely certain in regard to that.

The CHAIRMAN. The gentleman yesterday stated that the manufacturer had discovered a process by which he did not need benzoic acid.

Mr. KEDZIE. That, I understand, is what has lately been brought about.

Mr. WANGER. How recently have you examined Heinz's goods?

Mr. KEDZIE. I collected a sample about three weeks ago, and I inquired particularly, in getting the bottle, whether it had been long in stock, and was told that it had just been received about two or three days before. I bought it from my grocer at home.

I think, gentlemen, that I have presented in very few words and in short order what I have taken quite a long time to work out, because, you know, in estimations of this character—

Mr. TOWNSEND. Do you know whether Heinz sells the same product in all the States that he does in Michigan?

Mr. KEDZIE. I think he does not. I think he sells a different product in Michigan from what he does in other States.

Mr. TOWNSEND. Did you ever analyze any other variety?

Mr. KEDZIE. I have not analyzed any other variety.

Mr. ESCH. Have your investigations extended to sweet pickles?

Mr. KEDZIE. I did not analyze any sweet pickles. I ate them instead of analyzing them. I did not undertake that. The work of the investigation of fruits—the fresh fruits that were on the market that I could obtain—took all of my time, practically, excepting what work I had to do with the catsup.

Mr. MANN. Have you a memorandum there showing the percentage of benzoic acid in these other fruits?

Mr. KEDZIE. No; I have not. I can say, in reference to the other substances that I have mentioned, that it is very much less than it is in cranberries.

Mr. MANN. Did you make an analysis?

Mr. KEDZIE. I made a thorough test of each one, and I am prepared to say that in the grape fruit and the pineapple the amount of benzoic acid present there will not probably lie far from one one-hundredth to two one-hundredths of 1 per cent in the fresh fruit.

Mr. MANN. Did you ascertain in each of these fruits just how much benzoic acid was there?

Mr. KEDZIE. Only in the cranberries, and that I did over and over again.

Mr. RUSSELL. How long ago did you start this investigation?

Mr. KEDZIE. I started this investigation not quite a year ago—that is, on the cranberries.

Mr. RYAN. What difference, if any, is there in the two presevatives, benzoic acid as taken from the natural products and that derived from coal tar?

Mr. KEDZIE. My idea is that when benzoic acid is present in the food article—that is, pure benzoic acid in each case—it makes no difference what the origin of it is.

Mr. MANN. Is benzoic acid in crystals and benzoic acid in plums, so far as you can extract them, precisely the same?

Mr. KEDZIE. I can not see any difference. I brought along something that I worked out from cranberries that you could see—that is, I worked over quite a large quantity of cranberries, and I have it in this form. Here are two watch glasses cemented together. Now, if you put anything that contains benzoic acid in here and then heat it benzoic acid is so volatile at a comparatively low temperature that it will sublime and come up through this filter paper here and be filtered, as it were. It condenses on the watch crystal. That is one way of testing for it. That is not the most delicate way, but that is one way. You will see there [indicating] the benzoic acid that is crystalized on the inside.

Mr. MANN. It is so volatile that I do not understand why it does not all disappear in the stewing or boiling.

Mr. KEDZIE. Where it is in the interior of organic material like

cranberries it probably is held by the salt cells, or something of that kind.

Mr. MANN. That would not be the case in tomato catsup, I suppose.

Mr. KEDZIE. No; because that is placed in a more soluble form there.

The CHAIRMAN. What would be the effect of a large dose of benzoic acid upon the human stomach?

Mr. KEDZIE. Well now, Mr. Chairman, I am not a physiological chemist. My work is analytical, and what I know about that question is not much. I never took a large dose of benzoic acid—that is, a large dose, of course, would be 60 or 100 grains or more. I never took it and know nothing about it. I am not a doctor of medicine.

The CHAIRMAN. From your knowledge of the qualities and properties of the acid, what would be the probable effect of benzoic acid upon the human stomach?

Mr. KEDZIE. I should expect that if it was taken in very large doses—

Mr. RYAN. Name the doses.

Mr. KEDZIE. Up to 100 grains, between 60 and 100 grains—a large amount, a teaspoonful or a tablespoonful or something like that—that it would have an inflammatory action on the stomach.

The CHAIRMAN. It would be an irritant?

Mr. KEDZIE. It would be irritating; yes, sir.

The CHAIRMAN. What would be the effect upon the human stomach of continued small doses of it?

Mr. KEDZIE. I think, Mr. Chairman, in regard to that that I can testify from personal experience. In my case I have taken continued small doses. I eat cranberries right straight through the season; I like the cranberries, and I see no untoward effects whatever from their use. I never took benzoic acid except in that form and in the form of ketchup. I eat ketchup, of the Curtice brand, that I know contains benzoic acid, and I have it on my table every day. I do that in preference to taking the ketchup bottle, as I used to do when I was a boy, and running to the refrigerator every time after it is used and putting it there so that it would not sour and the cork would not pop out.

Mr. ADAMSON. You think that passes out through the stomach, when taken in small quantities, like other things?

Mr. KEDZIE. That is my opinion; yes, sir.

The CHAIRMAN. You regard it when used as a preservative, in the proportions that were spoken of by Mr. Williams yesterday, as entirely harmless, do you?

Mr. KEDZIE. That is my opinion; yes.

The CHAIRMAN. No bad effects would result from its constant use?

Mr. KEDZIE. In the amount that is used, 1 part, say, to 1,200, or 1 part to 2,000, and in such materials as were mentioned.

The CHAIRMAN. Let me ask you a little further. Did you make any investigation with regard to the presence of other articles that are used as preservatives, in the various investigations of yours?

Mr. KEDZIE. Mr. Chairman, I told you that I was a teacher, and I have a class of young women seniors in the college. We have what we call a domestic science course, and in that course I teach a subject which we call domestic science chemistry, and in that, of course, I take up the matter of preservatives. I have found other preserva-

tives used in articles of food within this last two weeks' term work—that is, I investigated bulk oysters, for instance, and found the presence of boric acid in a small amount. We investigated shrimps, also, which I found at the market and brought to the laboratory. That is my way of teaching. I investigated the shrimps and found in the shrimp liquor, on evaporating it, that there was a considerable amount of boric acid. Then I took a sample of pickles from my grocer—pickles that I eat myself—and tested them and found in the vinegar of the pickles sulphurous acid to prevent that little growth of mold that is so objectionable to the consumer.

Mr. BURKE. To what extent did you find sulphurous acid in the vinegar that you have just spoken of?

Mr. KEDZIE. I did not estimate the exact amount, but it was very small. It takes very little to inhibit the growth of a mold in the vinegar.

I thank you, gentlemen, for your attention.

TESTIMONY OF MR. EDWARD KREMERS—Resumed.

The CHAIRMAN. Are there any further questions the gentlemen of the committee wish to ask Professor Kremers?

Mr. RYAN. Mr. Chairman, I would like to ask Mr. Kedzie whether or not those last acids that he spoke of were found in quantities that were deleterious to health?

Mr. KEDZIE. I beg pardon. What is the question?

Mr. RYAN. Whether or not you consider the quantities that you found in shrimps and oysters and those other articles that you mention were deleterious to health; whether the acid was present in sufficient quantities to be deleterious to health.

Mr. KEDZIE. I eat the bulk oysters, and I eat the shrimps when I am invited out. My wife is not partial to shrimps, so that the Kedzie family does not have them; but I eat them without question when I am invited out.

Mr. ESCH. Under the Hepburn bill we make the Pharmacopœia a sort of standard in the matter of drugs. Have you any relation to the committee which establishes the standards for the Pharmacopœia used in the United States?

Mr. KREMERS. I have for the last revision been one member of the committee.

Mr. ESCH. How large is the committee?

Mr. KREMERS. Twenty-five men.

Mr. ESCH. From different parts of the United States?

Mr. KREMERS. Yes, sir.

Mr. ESCH. How are they selected?

Mr. KREMERS. Every ten years a convention of delegates of incorporated institutions of medicine and pharmacy convenes at Washington, and this convention elects the committee on revision.

Mr. ESCH. Has Doctor Wiley ever been associated with you in connection with this work?

Mr. KREMERS. Not in any official capacity, so far as I know. He may have been consulted by the subcommittees without my knowledge.

The CHAIRMAN. Have you anything further that you desire to submit to the committee?

Mr. KREMERS. No, sir; I am here at your wishes.

TESTIMONY OF VICTOR C. VAUGHAN.

Doctor VAUGHAN was duly sworn by the chairman, and testified as follows:

The CHAIRMAN. Give your full name, please.

Mr. VAUGHAN. Victor C. Vaughan.

The CHAIRMAN. Where do you reside, Doctor?

Mr. VAUGHAN. I reside at Ann Arbor, Mich.

The CHAIRMAN. What is your profession?

Mr. VAUGHAN. I am a practitioner of medicine and professor of physiological chemistry and hygiene in the University of Michigan.

The CHAIRMAN. How long have you been engaged in the study and practice of medicine?

Mr. VAUGHAN. I have been teaching in the University of Michigan since 1876, or thirty years.

The CHAIRMAN. At whose instance do you appear here?

Mr. VAUGHAN. I come here at the request of Mr. Elliott Grosvenor, of Detroit.

The CHAIRMAN. Under an employment?

Mr. VAUGHAN. I am employed by Mr. Grosvenor to come here.

The CHAIRMAN. Do you receive a compensation?

Mr. VAUGHAN. I do.

The CHAIRMAN. You have been making an investigation at his instance?

Mr. VAUGHAN. I have investigated the matter at his instance. I had also investigated it before.

The CHAIRMAN. What particular matter have you investigated at his instance?

Mr. VAUGHAN. The question of benzoic acid.

The CHAIRMAN. And its effect upon the human system?

Mr. VAUGHAN. And its effect upon the human system.

The CHAIRMAN. Will you proceed, now, and make such statement to the committee as you desire?

Mr. TOWNSEND. State what your experience has been to qualify you as an expert, and if you have ever had any relations with Doctor Wiley. I mean, tell us what experience you have had that would entitle you to testify as an expert on this matter.

Mr. VAUGHAN. I have been a teacher of physiological chemistry in the University of Michigan, as I say, for the past thirty years. I have been engaged in the study of foods experimentally, as well as in the study of the literature of the subject. I have been especially interested in the study of the effect of poisons upon the animal body. I have testified in many places as an expert on this subject and have written considerably upon the matter.

Mr. TOWNSEND. Did you prepare a report on typhoid fever?

Mr. VAUGHAN. I prepared the Government report on typhoid fever. May I explain how it was done?

Mr. TOWNSEND. Yes; I should like to have you do that.

Mr. VAUGHAN. I was in the volunteer service in the Spanish-American war. In August of 1898 the Secretary of War, at the request of the Surgeon-General, appointed what was known as the "typhoid commission," which consisted of Major Reed, of the Regular Army (who afterwards discovered the transmission of yellow fever by

means of mosquitoes); Major Shakespeare, of the volunteer service, and myself. We visited the various camps in the United States and studied typhoid fever. We worked for a year upon this report, when Major Shakespeare and I, being volunteers, were mustered out of the service. Soon thereafter both Majors Reed and Shakespeare died. By an act of Congress passed, I think, on March 3, 1903, although I may have the date wrong, there was an appropriation made to finish that report, and the report was to be finished by the surviving member of the board. I finished the report, and it has been published.

Mr. TOWNSEND. Have you ever been called as an expert in connection with Doctor Wiley in any matters?

Mr. VAUGHAN. I once served as an expert with Doctor Wiley; yes.

Mr. TOWNSEND. Since he has been in the Government employ?

Mr. VAUGHAN. Yes.

Mr. TOWNSEND. Did he receive compensation?

Mr. VAUGHAN. I do not know about that. It is not for me to say.

Mr. TOWNSEND. What was the case or subject involved?

Mr. VAUGHAN. It was the case of the food and dairy commissioner of the State of Ohio against the Arbuckle Coffee Company.

Mr. ADAMSON. Did you receive compensation for making the report of the investigation to which you have referred?

Mr. VAUGHAN. I did; by act of Congress.

Mr. ADAMSON. When you go out and answer a call in the practice of medicine, you receive compensation, or expect it, do you not?

Mr. VAUGHAN. Certainly. I could not live if I did not. [Laughter.]

Mr. ADAMSON. Almost everybody else is in your fix on that subject.

Mr. VAUGHAN. I should imagine so.

Mr. TOWNSEND. Proceed, Doctor, with your statement.

Mr. VAUGHAN. I do not wish to repeat anything that has been said here. We all know that benzoic acid is widely distributed in the plant world, and that we are every day eating more or less benzoic acid. Benzoic acid is found in the fruits about which Doctor Kedzie and Doctor Kremers have spoken, and the benzoic acid radical is found in all the proteids, meats, and everything like that that we eat.

It matters not what we eat, every day there is formed in our intestines from 1 to 10 grains of benzoic acid, coming from the food that we eat. This benzoic acid is split off in the small intestine from the foods that we eat and is absorbed as benzoic acid in the blood, and carried through all the tissues of the body, and finally reaching the kidney, combines with another substance—glycocoll—and is ejected in the urine as hippuric acid. From 1 to 10 grains of benzoic acid are formed every day in the human body.

In my teaching of physiological chemistry, having the students prepare hippuric acid, in order that there may be a larger amount than the natural hippuric acid in the urine, I have always required all my students to take from 15 to 30 or 60 grains of benzoic acid, or to eat a can of plums. The effect would be practically the same; that is, the amount of hippuric acid in the urine would be increased. Cinnamic acid, which is very closely related to benzoic acid, has been used quite extensively in the treatment of tuberculosis.

In this treatment, the cinnamic acid or cinnamate of soda is injected under the skin, so that there is no question about its absorption,

and, although used in persons who are tubercular, of course in small amounts, it has not produced any harmful effects, for this reason, that it is found so widely distributed in our foods that it is naturally and every day formed within our bodies. I am quite confident myself that benzoic acid, in the amounts in which it is used as a preservative in foods, is without ill effects on the human body.

Mr. TOWNSEND. Have you ever had anything to do with tuberculosis and hydrophobia and some of those matters?

Mr. VAUGHAN. I am a member of the board of directors of the American Association for the Prevention and Study of Tuberculosis. In my laboratory we treat cases of hydrophobia.

Mr. STEVENS. What would be the effect of consuming benzoic acid in some foods and salicylic acid in others and boric acid in others? Would there be an accumulative amount of this in the system that would produce any deleterious effect?

Mr. VAUGHAN. I want to say, and I should have said in the beginning, that I am very anxious that Congress should do something to regulate the use of preservatives in foods. I think that the use of preservatives in foods may be and often is overdone, and that great harm may come from their excessive use. The law requires of a physician, before he can prescribe benzoic acid or sulphurous acid or anything of that kind, a certain degree of education, and that he must pass a State examination. It should not allow every butcher to spread upon his meat as much sulphite of soda as he pleases, nor every maker of ketchup to put in his product as much benzoate of soda as he pleases. I am thoroughly desirous that something should be done to regulate the use of preservatives in foods.

Mr. BURKE. Where would you draw the line? Where would you fix the point beyond which it would be dangerous to go in the use of benzoic acid, as to quantity?

Mr. VAUGHAN. That brings up a very interesting point. If you will permit me, I would like to say just a word about that. I do not know that I am prepared to answer the question just now. It seems to me that that ought to be settled by a commission of experts, as to what preservatives could be used and in what amounts they could be used and in what foods they might be used.

Mr. STEVENS. In other words, you want a board or bureau of standards?

Mr. VAUGHAN. I think so.

Mr. BURKE. Have you not an opinion of your own in regard to the matter?

Mr. VAUGHAN. Yes; I have an opinion of my own, but that opinion might be changed by further study of the subject. I am sure that benzoic acid in the quantities in which it is used in tomato ketchup, sweet pickles, etc., one part to 1,200 or 2,000, does not do any harm. I should be opposed to the use of formaldehyde in milk in any quantity, or the use of any other preservatives in milk. I have testified repeatedly against the use of sulphite of soda on hamburger steaks. I am thoroughly in sympathy with the Hepburn bill. It does seem to me, however, that it is the part of wisdom not to say that preservatives shall not be used at all, but to find out what foods need preservatives and in what quantities they might be used with safety.

Mr. BURKE. Is not formaldehyde used very generally now in preserving cream and milk?

Mr. VAUGHAN. I do not think it is used generally. It is used to some extent.

Mr. BURKE. Where cream is gathered up and shipped some distance to a creamery they use some preservatives, and usually formaldehyde, do they not?

Mr. VAUGHAN. I do not know. I have not found much formaldehyde in cream. Borax is used some, and one-half of 1 per cent of boric acid is used. Formaldehyde is used to some extent.

Mr. MANN. Do you understand that the Hepburn bill absolutely forbids the use of preservatives?

Mr. VAUGHAN. No, sir; but I find that it puts in the hands of one man, or of one Department, at least, the question of deciding as to the harmfulness of preservatives.

Mr. MANN. You say in the hands of one man or one Department. Eventually it must be put into the hands of somebody to decide the question, in your opinion, I take it?

Mr. VAUGHAN. Certainly, certainly.

Mr. MANN. The Hepburn bill provides that the Secretary of Agriculture shall decide, but provides that he may also consult the official board or other experts, and, as I understand, does not provide that the decision is binding—

Mr. VAUGHAN. Section 7 provides—

That it shall be the duty of the Secretary of Agriculture to fix standards of food products when advisable for the guidance of the officials charged with the administration of food laws and for the information of the courts, and to determine the wholesomeness or unwholesomeness of preservatives and other substances which are or may be added to foods; and to aid him in reaching just decisions in such matters he is authorized to call upon the committee on food standards of the Association of Official Agricultural Chemists and such other experts as he may deem necessary.

Of course that gives him the privilege of calling upon anybody whom he sees fit.

Mr. MANN. Yes.

Mr. VAUGHAN. If he does not see fit, he may rely altogether upon the head of the Bureau of Chemistry.

Mr. TOWNSEND. Right there I want to ask you this question: As I understand, some experiments have been made with benzoic acid to determine whether it is harmful or not, by giving doses of pure benzoic acid to patients. What have you to say in regard to that method of determining the safety of benzoic acid—whether it is harmful or otherwise?

Mr. VAUGHAN. The experiments upon benzoic acid, I understand, have been finished by Doctor Wiley, but there is no report upon them up to the present time. Doctor Wiley has made a report upon boric acid as to preservatives, and while I am a personal friend of Doctor Wiley's and appreciate him very highly and think greatly of him, his experiments have shown that boric acid in large amounts disturbs digestion and interrupts good health, but they have not shown that boric acid in the small quantities which should be used as a preservative, if used at all, has any effect on the animal body.

Mr. ADAMSON. About what do you mean by "small quantities?"

Mr. VAUGHAN. I mean one-half of 1 per cent. But, as I say again, I should think this ought to be decided by a committee of experts.

Mr. ADAMSON. Well, we want your opinion now.

Mr. MANN. What do you mean by a committee of experts? How would you provide for a committee of experts except under some Department of the Government?

Mr. VAUGHAN. I should say that the Hepburn bill ought to authorize the Secretary of Agriculture to appoint a committee of experts, one of whom should be a bacteriologist.

Why ought we to use preservatives in foods at all? The use of preservatives in foods is to prevent the growth of bacteria. Doctor Wiley is a good chemist, and the Bureau of Chemistry is doing excellent work; but how in the world can anyone except an expert bacteriologist decide how much of a preservative is necessary to preserve a given food? If you wanted to get a patent, you would not go to a criminal lawyer in order to get it. If you wanted to defend some one on a charge of murder, you would not go to a patent lawyer. And I must say, with all due respect to the agricultural chemists of this country, many of whom are great men and doing splendid work, that men who are engaged all their lives in assaying soils and estimating the value of fertilizers are not fitted by education to determine the effect of anything upon the animal body.

Mr. MANN. That is what this bill assumes, which you are combating.

Mr. VAUGHAN. I am not combating the bill.

Mr. MANN. You are combating that provision of it. That is what the bill assumes, that the Secretary of Agriculture shall not be confined to any particular person or any particular set of officials, and that in order to obtain guidance for his action he shall be permitted to call in the best experts in the different lines which may be affected. I do not see how you can get a more perfect provision than that, if honestly executed.

Mr. VAUGHAN. It says that he may do so.

Mr. MANN. Oh, yes; it says that he may do so. That is the same thing as saying that he shall do so.

Mr. BARTLETT. You have had some experience with action by the Agricultural Department in connection with the appropriation that was made here some years ago with reference to establishing some standards. Do you know whether the Secretary of War or Doctor Wiley called in any expert chemists then?

Mr. VAUGHAN. I do not know of anyone being called in.

The CHAIRMAN. In the case of a great many of those standards there is but little dispute about them?

Mr. VAUGHAN. Yes, indeed.

The CHAIRMAN. Very little?

Mr. VAUGHAN. Yes.

The CHAIRMAN. You would not require the same care and bring to bear upon the subject the same amount of expert talent in those cases that you would upon cases of greater importance, would you?

Mr. VAUGHAN. No, sir.

The CHAIRMAN. Is it not necessary, then, to have a discretion lodged somewhere as to how you shall arrive at these standards? Take those, for instance, that are of comparatively small importance, about which there is but little dispute. Then there are others that are of very

great importance and about which there is a difference of scientific opinion. Is it not wise to have a discretion lodged somewhere, so that these more important questions may be investigated more thoroughly than the others that are not so important? If you will kindly tell us how you would arrange that differently from the seventh section of this bill, I think the committee would all be glad to hear you. What we want is to get at the best method.

Mr. VAUGHAN. Yes.

The CHAIRMAN. We want to get at the best practical method.

Mr. VAUGHAN. I am heartily in sympathy with the Hepburn bill, but I am very glad that you ask me to make a suggestion there.

The CHAIRMAN. We shall be very glad to hear you on that.

Mr. VAUGHAN. I have not thought about the wording of this, and of course the wording will be crude, but, referring to your section 7. I would say, "That the Secretary of Agriculture, for the purpose of fixing standards for food products and determining what preservatives might be used, should appoint a board of five, of which the director of this Bureau of Chemistry shall be one ex officio; that one of these members shall be a bacteriologist, that one of them shall be a physiologist, that one of them shall be a physiological chemist or toxicologist, and that one of them shall be a pathologist," because it is desirable that these matters should be looked upon from all standpoints. Science has become specialized to so great an extent that it is impossible for one man, I care not what his intentions may be, nor how wide his range of wisdom may be, it is impossible for him to give the matter the expert attention that would be given by such a board as this. And I would provide that this board, appointed by the Secretary of Agriculture, shall give advice, as it states here, for the information of the courts, in trying these cases:

Mr. BARTLETT. To fix a standard?

Mr. VAUGHAN. Yes.

The CHAIRMAN. You think that would be better than to call to the aid of the Secretary of Agriculture the committee on food standards of the Association of Official Agricultural Chemists?

Mr. VAUGHAN. Most of those men are eminent men, but they are many of them not medical men even. It is no disparagement of them. I know nothing about agricultural chemistry, but they know nothing about the action of substances on the human body. I am extremely anxious that this bill should be passed; but it does seem to me that a slight modification here would make it almost a perfect bill.

Mr. STEVENS. You would not have the things you spoke of referred to that board?

Mr. VAUGHAN. I do not see why not.

Mr. MANN. Would you have the fixing of standards of food referred to a medical board?

Mr. VAUGHAN. I do not see why not.

Mr. MANN. It might be a question entirely apart from the matter of health.

Mr. VAUGHAN. It is not all a medical board. It is a board of practical scientists.

Mr. MANN. Practically you named a medical board.

Mr. VAUGHAN. Bacteriologists need not be medical men or physiologists.

Mr. MANN. A large share of the questions as to food standards have

nothing whatever to do with bacteriology. When you touch on preservatives, that may bring in the subject of bacteriology, but when you fix the standard of purity of food bacteriology has no more to do with it than the man in the moon.

Mr. VAUGHAN. I would make the Chief of the Bureau of Chemistry the chairman of that commission.

Mr. MANN. I know; but you want to confine the decision of the subject to five men absolutely, who should deal with all questions. We want to leave it so that the Secretary of Agriculture may call the most expert men upon the lines that are under investigation. You assume that the Secretary of Agriculture will not perform his duty. We assume that he will. If he does not, we will change the law.

Mr. VAUGHAN. Well, of course, I am not a lawyer. In England they have a commission do these things and make the recommendations. It is worked better there than it has worked almost anywhere else.

The CHAIRMAN. Is there any way of dividing the line of subjects that should be referred to the board that you have suggested? Can you give us some thought upon the matter of separating those that you would regard as important to come before just such a board as you have spoken of and those others that might be determined under the provisions of this bill with safety.

Mr. VAUGHAN. I have not thought about that, Mr. Hepburn, but of course there are many ways in which it might be done.

The CHAIRMAN. Give us such ideas as you may have now upon that dividing line.

Mr. VAUGHAN. It might be done upon the petition of a number of manufacturers of these foods—that is, they would appeal from the decision of the Chief of the Bureau of Chemistry and appeal to this board. That is one way that happens to strike me just now.

The CHAIRMAN. Yes.

Mr. VAUGHAN. I know that many of the manufacturers of these foods are honest in their intentions.

The CHAIRMAN. Could you, from your general knowledge of the subject, from your knowledge of foods, and knowledge of preservatives and those questions that probably would be disputed, give us some view with regard to that, so that we might make proper provision in that direction?

Mr. VAUGHAN. Benzoic acid certainly would be disputed. Boric acid would be disputed as to the quantities in which it should be used. There would be some dispute about salicylic acid undoubtedly, and there would be some dispute about the fluoride of ammonia.

The CHAIRMAN. That is used as a preservative?

Mr. VAUGHAN. Yes.

The CHAIRMAN. You would classify all of those as preservatives?

Mr. VAUGHAN. Yes.

The CHAIRMAN. Is there anything else that has come to your knowledge that probably would be the subject of dispute in this matter of standards and that would be best served by the board that you have suggested, speaking of that now as a possible addition to the method provided here in the bill?

Mr. VAUGHAN. Yes. I think the other questions would be largely chemical, Mr. Hepburn, and could be decided by the Bureau of

Chemistry—the question of adulterations. I think the Bureau of Chemistry would be quite competent to deal with those questions. I want to say, too, that I am thoroughly in favor of branding every preservative and everything that is used in foods and having the label show just what is there. If there is boric acid used or if there is benzoic acid used, it should be stated on the label. But in addition to that, a man should not be allowed to sell anything that is harmful in the quantities used, even if it is branded.

Mr. MANN. Nothing that is clearly harmful?

Mr. VAUGHAN. No. Because the superior intelligence of this body should protect the ignorant people of the country against injuring themselves. Do you not think so?

Mr. MANN. Why, I fully agree with you, and I think you agree with the committee on this.

Mr. VAUGHAN. I am heart and soul for this bill.

Mr. KENNEDY. How would you make an experiment to determine whether the quantities of this acid used in ketchup and pickles are injurious? How would you experiment—by giving pickles and ketchup to anybody to eat?

Mr. VAUGHAN. Why, in the first place, I would have a bacteriologist determine whether in ketchup, etc., a preservative is needed or not; and if he could find any way that those things could be sold and marketed without preservatives, then let this committee announce to the manufacturer the way of doing it. They would all be anxious to do it—the better class of them. Find out whether it is necessary to use preservatives or not; find out the minimum amount of that preservative which is necessary to take care of that special food under the conditions in which it is marketed, and then experiment both upon animals and upon human beings with those small doses over a long period of time.

Mr. MANN. Do you have any doubt that that will be the action taken under this provision of the bill as it stands?

Mr. VAUGHAN. I think if you add such a committee as I suggest it would be more likely to be carried out in that way.

Mr. KENNEDY. Could an analytical chemist purely make such an experiment?

Mr. VAUGHAN. Certainly he could not; no, sir. You would have to study the effect on the heart; you would have to study the effect upon respiration; you would have to study all those things, that are neglected by the chemists; all of them.

Mr. MANN. But the experts provided in section 7 are not confined to expert chemists.

Mr. VAUGHAN. I know.

Mr. MANN. You seem to have forgotten that.

Mr. VAUGHAN. I am very anxious to see that that board of experts is provided for.

Mr. TOWNSEND. Do you know whether in the Department they have condemned or adopted certain things without this careful analysis or experiment that you have been talking about?

Mr. VAUGHAN. I do not know that any experts were called in by the Department to advise about boric acid.

Mr. RYAN. Do you know whether any chemists or experts have been consulted in addition to those already employed in the Department?

Mr. VAUGHAN. I do not know of any.

Mr. RYAN. You do not know of any?

Mr. VAUGHAN. No.

Mr. BARTLETT. According to a report made, which I hold in my hand here, dated December, 1904, it appears that the Secretary of Agriculture has called in certain alleged experts under the act of June 3, 1902, and these are the persons mentioned—see if you know who they are—William Frear, E. H. Jenkins, M. A. Scovell, H. A. Weber. Do you know them?

Mr. VAUGHAN. Yes, sir.

Mr. BARTLETT. Tell us who they are.

Mr. VAUGHAN. They are good men. They are all chemists. Dr. William Frear is professor of chemistry in the Pennsylvania Agricultural College.

Mr. BARTLETT. Professor of chemistry, you say?

Mr. VAUGHAN. Yes. Mr. Jenkins holds the same position in Connecticut.

Mr. BARTLETT. He is a chemist—nothing but a chemist?

Mr. VAUGHAN. Yes. Mr. Scovell is in Kentucky.

Mr. BARTLETT. And he is what?

Mr. VAUGHAN. A chemist. Mr. Weber is a man capable of making the broadest experiments. He is in the Ohio State University.

Mr. BARTLETT. He is capable of making experiments in what way?

Mr. VAUGHAN. Both in chemistry and in action on the body.

Mr. RYAN. He is the kind of man you think should be engaged on this work?

Mr. VAUGHAN. I think so. I am not disparaging any of them.

Mr. BARTLETT. I did not ask the question for the purpose of having you disparage anybody.

Mr. KENNEDY. Not long ago in my State there was a wager made that a man could not each day for a month eat a quail. I think he tried it and got very sick and failed. What is your idea of what made that man sick?

Mr. VAUGHAN. The sameness of the food.

Mr. KENNEDY. I suppose the same thing would affect the man who had a continued diet of boracic acid.

Mr. BARTLETT. I called your attention to several men. Would these men answer the requirements that you suggest ought to be met by the members of the board that you think should decide these questions?

Mr. VAUGHAN. That is getting to be personal.

Mr. BARTLETT. No; I did not mean it that way at all.

Mr. VAUGHAN. I do not like to express an opinion.

Mr. BARTLETT. I do not mean their capacity in the field in which they are now engaged. I mean would they come up to the requirements of members of the board that you suggest?

Mr. VAUGHAN. In all chemical questions they would be perfectly competent.

Mr. BARTLETT. But, as I understand you, on the committee which you recommend we ought to have not only chemists, but men skilled in various other sciences.

Mr. VAUGHAN. Yes.

Mr. BARTLETT. Would that board fill the requirements as to the kind of men that should be on it?

Mr. VAUGHAN. I do not believe it would.

Mr. BURKE. When benzoic acid is taken in excessive quantities, what is the effect?

Mr. VAUGHAN. In large quantities it irritates the stomach. In very large quantities it causes acute inflammation of the mucous membrane of the stomach, nausea, and vomiting. The maximum medical dose of benzoic acid is about 10 grams, or 150 grains, and larger amounts are likely to cause inflammation of the stomach.

Mr. MANN. How much benzoic acid could one eat, day after day, year after year, without injury?

Mr. VAUGHAN. I could not answer that.

Mr. MANN. Have you any idea about it? How much can you eat wholesomely without injury?

Mr. VAUGHAN. I should say, certainly the amount that is formed in your own body, which is from 1 to 10 grains a day.

Mr. MANN. That is formed in addition in your own body. I ask, How much can you eat?

Mr. VAUGHAN. I would have to answer only in a general way and say a grain or two, I am sure, taken day by day for one's life, would not do one any harm.

Mr. MANN. Do you mean 1 grain or 2 grains?

Mr. VAUGHAN. One grain.

Mr. MANN. Would 2 grains do any harm?

Mr. VAUGHAN. Well, I do not know. That is just the idea of getting a commission to study these things. I would not like to set up my dictum. I do not know enough about it.

Mr. MANN. I appreciate your position, Doctor; but still, as far as you can, we would like to have your opinion.

Mr. VAUGHAN. Well, I should say 1 grain would be perfectly safe. I do not know whether 2 grains would be or not.

The CHAIRMAN. We are about to take a recess, Doctor, and I wish at your leisure you would give us, so that we may use it on Monday, as we shall probably have no session to-morrow, your idea in concrete form of how this section 7 should be amended to meet just the objection that you have.

Mr. VAUGHAN. I thank you. I shall be very glad to do that.

The CHAIRMAN. The committee will be very glad to have you do that. And we would be glad to have you make a line of separation between those subjects that should be referred to the board that you have in your mind and those others that it would be entirely safe to leave under the provisions of the bill.

Mr. VAUGHAN. I may say that there is an example of such a board. There is a board of advisers to the Public Health and Marine-Hospital Service. That board I am a member of, and it is appointed by the Secretary of the Treasury. There are five members of it, I think. I was appointed to advise the Public Health and Marine-Hospital Service on any matters that the Surgeon-General may desire.

The CHAIRMAN. If you will put that in shape for us we will be obliged to you.

Mr. VAUGHAN. I shall be glad to do it.

(The committee thereupon went into executive session, after which a recess was taken until 2 o'clock p. m.)

AFTER RECESS.

(At the expiration of the recess the committee resumed its session, Hon. William P. Hepburn in the chair.)

STATEMENT OF AUGUSTUS P. GARDNER, ESQ., A REPRESENTATIVE FROM MASSACHUSETTS.

Mr. GARDNER. I appeared before this committee two years ago to make some remarks with regard to the use of boracic acid in the preparation of boneless and desiccated codfish—codfish as it is put up in packages for commercial use. At that time I pointed out that in the preparation of this codfish “preservaline” is used in the weight of 1 to 100; that that “preservaline” is four-tenths boracic acid; in other words, that in preserving this codfish four-tenths of 1 per cent of boracic acid is used. You will observe that that is a little less than one-half of 1 per cent, which was the amount that Doctor Vaughan stated in his testimony this morning was, in his opinion, harmless.

I pointed out to the committee, moreover, that the true measure of the wholesomeness or unwholesomeness of codfish was not whether, when it came from the grocery store, it contained a given amount of boracic acid, but that the true measure was when that codfish was ready for the table. Codfish being a salt product, and salt being soluble, in order to prepare any brand of codfish that ought to be used for the table it is necessary for the housewife to soak it in water; and as borax is just as soluble as salt. I pointed out to the committee that in soaking out the salt of necessity the amount of borax was substantially diminished if not altogether eliminated.

I presented that point of view in several interviews to Doctor Wiley, the Chief of the Division of Chemistry. I made some progress with him, and finally he prepared an amendment in his own handwriting, to which, to be sure, he did not commit himself; at all events he made no particular objection at the time to the amendment which he drew.

On the 8th day of January, 1904, I made a statement to this committee following immediately on Doctor Wiley's examination before the committee. I will state it, as a matter of fact, that Doctor Wiley was present after he got through his own evidence during all the time while I presented mine. That fact, of course, does not appear in the printed report of the committee hearing. Nevertheless, it will appear that I began to speak the moment he got through. In his presence, as I state, gentlemen—and my memory is correct, I have every reason to believe, in the matter—I presented the amendment drawn by Doctor Wiley to this committee, together with another suggested amendment taken directly from the statutes of Massachusetts, containing the exact words of the Massachusetts statute on the subject, and I concluded my testimony by saying this:

I have nothing more to say, except to offer these amendments which I suggest should be put in the bill. One is drawn by Doctor Wiley, but I should say that he does not commit himself to it.

That amendment I submitted in his presence. I do not understand that at the time he offered any objection to this committee, either in public or private, to the wording of the amendment which he himself had drawn. At all events, I heard of no such thing.

The committee, taking into consideration the wording of both amendments, inserted before they reported the Hepburn bill an amendment which included certain features of the Massachusetts statute, but was practically, to all intents and purposes, the amendment drawn by Doctor Wiley. So far as I knew, this was the state of affairs until this year. But observing that the bill of Senator Heyburn was under discussion in the other branch, I brought Senator Lodge's attention to the wording of the clause in the Hepburn bill, which had been inserted largely at my suggestion, and he prepared an amendment, which he submitted to the Senate, so that the Heyburn bill and the Hepburn bill should read exactly the same so far as this particular passage is concerned; whereupon I was informed, after a time, that Doctor Wiley strenuously opposed the adoption of the so-called "Lodge amendment." I thereupon put myself in communication with the Chief of the Division of Chemistry and found out, to my astonishment, that he had, from my point of view, entirely altered his position on the matter.

MR. ESCH. Was that amendment suggested prior or subsequent to the publication by the Bureau of Chemistry of its report on the use of borax?

MR. GARDNER. If you can tell me the date of that report I can tell you.

MR. MANN. That amendment was proposed prior to the report.

MR. BURKE. Oh, he had not completed the report; I remember.

MR. GARDNER. I think, Mr. Chairman, that that is the fact, without examining the dates.

MR. MANN. There is no doubt about that.

MR. GARDNER. But all the material from which he made the report was in his possession at the time that that amendment was drafted; and I do not think that the objections which he raises have anything to do with any conditions or any information which have come forward since the amendment was adopted. The whole line of his criticism, in other words, is based on conditions of which he was fully cognizant at the time.

THE CHAIRMAN. Is that amendment in this bill now?

MR. GARDNER. What bill have you there?

THE CHAIRMAN. The so-called "Hepburn bill," page 8, the proviso beginning on line 3:

Provided, That when in the preparation of food products for shipment they are preserved by an external application applied in such manner that the preservative is necessarily removed mechanically or by maceration in water or otherwise, the provisions of this act shall be construed as applying only when said products are ready for consumption.

MR. GARDNER. Exactly, sir; that is, after they are soaked in water.

THE CHAIRMAN. That is the amendment, is it not?

MR. GARDNER. That is the amendment in question.

THE CHAIRMAN. It is in this bill now?

MR. GARDNER. It is in this bill now. Now, I hope it will not be thrown out of this bill, because I think that all the material was on hand when it was drafted that is on hand now.

THE CHAIRMAN. Have you heard of any proposition to throw it out, or to change that?

MR. GARDNER. Merely that there is substantial objection to the adoption of the same wording in the Senate. That is, the Lodge

amendment is exactly in that wording, and there certainly is a great deal of unofficial talk going on to the effect that this is seriously objected to by the chief of the division.

To go on a little further in this matter, I appreciated very highly the adoption of this amendment drawn by Doctor Wiley. At the same time, it was not altogether satisfactory to me; but I thought it was the best that he would agree to, and therefore I agreed to it. But the question having been reopened by that gentleman, I feel at liberty to reopen it myself with the committee.

The CHAIRMAN. This is the amendment that you asked for two years ago, is it not?

Mr. GARDNER. Precisely.

The CHAIRMAN. And it is in the bill?

Mr. GARDNER. It is in the bill. I do not understand that the bill is reported; it is the bill introduced by yourself.

Mr. BARTLETT. The bill we are considering?

Mr. GARDNER. The bill which you are now considering.

I was going to suggest to the committee that if the so-called Rodenberg bill, which I think is the National Food Manufacturers' Association bill—

Mr. BARTLETT. That is not here; that is down in the Committee on Manufactures, is it not?

A MEMBER. No; it is here.

Mr. BARTLETT. I beg your pardon; I understood it was there.

Mr. GARDNER. I think you will find that is No. 13859, and it is referred to the Committee on Interstate and Foreign Commerce.

Mr. BARTLETT. Go ahead, sir; I seem to be mistaken. I thought it was down there.

Mr. GARDNER. That bill, if you will turn to page 13, line 9—

Mr. MANN. What is the number of it?

Mr. GARDNER. No. 13859. It is introduced by Mr. Rodenburg, and, as Mr. Rodenburg informs me, is a bill prepared by the National Association of Food Manufacturers.

Mr. RYAN. Do you refer to page 8?

Mr. GARDNER. Page 13, line 9, being the fourth subdivision of the main proviso of that article, explaining what shall and what shall not be deemed adulterated or unwholesome.

I am informed that the purpose of that section is to make it impossible for any board who shall investigate these questions with a view to raising a standard to rule out an article of diet solely because it contains boracic acid and other acids, provided that it does not contain them to a greater amount than the list specifies. That amendment does not read so, in my opinion. I am informed that it is the intention that it shall read so, and undoubtedly some amendment will be offered to make it read so.

Mr. BARTLETT. It says "shall not be used in a greater amount," etc.

Mr. GARDNER. I quite understand that, Judge. If you will read it over, however, I think you will see that it does not mean what the people who have introduced it perhaps think it does mean. At all events, I wish to appear and present my witnesses in behalf of the addition to the Hepburn bill of a paragraph which shall provide a minimum of this sort, and make it impossible for any commission, whether it shall be composed in such a way as was suggested by Doctor Vaughan this morning or by the selection of the Secretary of

Agriculture (in view of the fact that many people who have investigated those subjects are inclined to take a not altogether common sense and practical view of this question), to prohibit the use of boracic acid, provided it does not appear in excess of one-half of 1 per cent—the amount stated by Doctor Vaughan this morning as being harmless.

Now, we do not use so much boracic acid as that. Moreover, if we did use it it would be washed out in the process of the preparation of our food product for the table.

Mr. MANN. Would you want both provisions in the bill?

Mr. GARDNER. I am not prepared to answer that question, Mr. Mann, but I should say not. I mean to say, I should say that the one might render the other unnecessary. I would want to give further thought to that question before I answered it definitely.

We contend that when we are engaged in the manufacture of an article of diet we want to know when we approach the danger line. In other words, we do not want to produce an article of food which we consider perfectly harmless and then find that we are subject to fine or imprisonment when we try to transport that food from one State to another. I realize that no standard can be set beforehand, but a minimum standard can be set beforehand, in order that the manufacturer may say to himself, "Provided I stay inside that minimum I need not fear anyone. If, on the other hand, I exceed the minimum"—

Mr. ESCH. You mean a maximum, do you not?

The CHAIRMAN. What safety would there be if you fixed a minimum?

Mr. GARDNER. I do not understand the question.

The CHAIRMAN. If you fixed a grain as the minimum, what would prevent you from putting in a pound?

Mr. GARDNER. I do not think you understand what I mean by a minimum. I say a minimum below which the reviewing board or whatever you call it—the standard board—can not go and say that your article of food is impure. In other words, if you have less than a certain percentage make it impossible for the reviewing board to say that you are committing a crime.

Mr. BARTLETT. This bill of Mr. Rodenberg's says "shall not exceed."

Mr. GARDNER. I quite understand that. I do not think it is satisfactory from that point of view, but I used it as an introduction, to point out what I did think would be satisfactory to those people that I represent. I suggest that it should read as follows:

An article of food shall not be deemed adulterated or unwholesome solely for the reason that it contains a single preservative—

I am not going to allow them to double up on preservatives—

in the following list, provided that the quantity of said preservative does not exceed the amount specified, as follows.

In other words, put in the statute—fix it as low as you think wise—but say, "Gentlemen, you are absolutely safe if you do not put in any more than that. If you wish to put in any more than that, then your act becomes reviewable by this board of standards, which may be created in one way or another."

The CHAIRMAN. Would you make that applicable to the washing of cubes of codfish with boracic acid, for instance?

Mr. GARDNER. In the first place it would not be necessary to make it applicable, because even if you took that sample of codfish as it came out of the grocery store, with all the boracic acid in it that is ever going to get in it, it would be well inside this minimum.

The CHAIRMAN. You remember, of course, that there was a difference of opinion between the statements that were made with regard to those samples that were presented here and the analysis of the Department.

Mr. GARDNER. I quite remember that.

The CHAIRMAN. The Department found very many times more boracic acid, if that was the wash used.

Mr. GARDNER. Quite so, Mr. Chairman. I will endeavor to explain that in a minute. But I would like to point out that, if they exceeded this minimum, and the Division of Chemistry on analysis should find a sample which did exceed it, they would be subject to the provisions of this law. In other words, at their own risk they must not exceed what they say they do.

The CHAIRMAN. But, as I understand you, you apply this preservative as a wash?

Mr. GARDNER. It is surface application.

The CHAIRMAN. Surface application. It is put on with a brush, as I understood you to say?

Mr. GARDNER. It is sprinkled on, dusted on.

The CHAIRMAN. Is this percentage that you spoke of to be ascertained with reference to the whole mass to which it is to be applied? Is that what you understand? For instance, if it is five-tenths of 1 per cent, in ascertaining that you would take into account the whole mass of the fish to which it was applied, would you?

Mr. GARDNER. Let us take, for illustration, a package of some of these forms of boneless codfish that are sold. Take a package, we will call it, of "water lily."

The CHAIRMAN. Say of 1 pound?

Mr. GARDNER. Say of 1 pound. If the analysis of that package showed that more than one-half of 1 per cent of the weight of that pound consisted of boracic acid, then such fish would become subject to the provisions of this law.

The CHAIRMAN. I understand you.

Mr. MANN. Suppose it were a half or a quarter of beef?

Mr. GARDNER. Yes.

Mr. MANN. Would you have to analyze the whole quarter of a beef to ascertain that fact?

Mr. GARDNER. What you mean to say is that it depends a good deal upon what particular spot you strike for analysis. Is that the idea?

Mr. MANN. That is what I know—what you want to get at: whether in order to determine whether one is exceeding one-half of 1 per cent the chemist would have to analyze the whole quarter of a beef, or whether he would have to eat the whole quarter of a beef.

Mr. GARDNER. I do not know enough about the packing industry to answer that; but let me ask you this question: As a matter of fact, is not that preservative evenly distributed throughout your quarter,

and would not the analysis of a small portion be a proper analysis for the whole?

Mr. MANN. It is perfectly self-evident that any preservative that is sprinkled on the outside is not distributed throughout the quarter.

Mr. GARDNER. Are you sure?

Mr. MANN. It may be on the outside of the quarter, but not on the inside of the quarter.

Mr. GARDNER. That is to say, if you took a piece of the inside, we will say the tenderloin, or whatever it may be——

Mr. MANN. There might be no preservative on that.

Mr. GARDNER. What preserves it, then?

Mr. MANN. It might be preserved by being kept from the air, so far as impurities in the air were concerned.

Mr. GARDNER. You mean that it is preserved on the principle of hermetically sealing, then?

The CHAIRMAN. Well, that was one of the difficulties that was found by this analysis, as I remember it. The statements that were made were to the effect that the preservative was put upon the outside.

Mr. GARDNER. That is right.

The CHAIRMAN. And that in the maceration in water, it was readily removed; but the analysis showed that the boracic acid penetrated all parts of the specimens that we were supplied with.

Mr. GARDNER. Yes; I might say there is no question but what it does.

The CHAIRMAN. So that putting it on the outside in this way, with a view of washing it out, was somewhat illusory?

Mr. GARDNER. Well, Mr. Chairman, I do not think that either Doctor Wiley or I are responsible for the wording of that amendment. You, in that amendment, use the words "surface application." In the amendment that I submitted, drawn in Doctor Wiley's handwriting, no such wording was used.

The CHAIRMAN. But the whole argument that was made here by you was to the effect that it was a surface application, and that it did not penetrate.

Mr. GARDNER. Well, Mr. Chairman, you may be correct; but I have read my evidence over very recently, and I can not remember that my argument was based on any such ground. In reply to questions, just as to-day, I stated how it was put on; but I do not think that you will find that in my evidence before the committee. It may have been at a previous year; and I will admit that when I am talking about these matters I am simply a transmitter of information, and the longer I keep at it the more accurate I get on the subject; but I can not admit that in my argument before this committee two years ago I based it on the ground that the surface application had anything to do with the question.

The CHAIRMAN. I may be wrong, but that is the impression I have.

Mr. GARDNER. I have heard that claim made by other people in discussing it, Mr. Chairman.

The CHAIRMAN. And it was impressed upon my mind by the statements that were afterwards made by the chemist that instead of finding the preservative on the surface he found it through all parts of the samples.

Mr. GARDNER. I think that perhaps what may be in the chairman's mind is this: I quoted the Massachusetts statute, which uses these words:

That dried fish preserved by a suitable preservative substance employed as a surface application shall not be deemed adulterated within the meaning of this act.

The CHAIRMAN. That applies to dried fish, does it?

Mr. GARDNER. Why, yes. It is all dried fish that is in question. You understand it is not necessarily sun dried.

The CHAIRMAN. We had here some statements with regard to the process of curing dried fish. I remember one gentleman stated that it required two years in its preparation, and that one of the reasons for using this preservative was to save that lapse of time and to authorize the using of the fresh fish.

Mr. GARDNER. That is substantially correct.

The CHAIRMAN. I had forgotten that the Massachusetts statute applied solely to the dried fish.

Mr. GARDNER. Yes; but you know that the market product is dried fish.

The CHAIRMAN. Well, I do not know that. I have seen canned boneless codfish that had no appearance whatever of having been dried.

Mr. GARDNER. You mean to say that it was soft and pliable?

The CHAIRMAN. Soft and pliable; yes, sir.

Mr. GARDNER. That is to say, it was not dried in the sense of sun dried?

The CHAIRMAN. And it certainly was not dry in the sense of what I had supposed was dried codfish, which would be a slab something like a mahogany board. [Laughter.]

Mr. GARDNER. No; I will admit that it is not "like mother used to make." But I think that the chairman and I would probably disagree about the construction of the words "dried fish." That is all.

However, I never have based my argument, and I do not now, on the question as to whether or not the surface application has anything to do with it. I simply am pleading for a section of that bill which will, without danger, permit a manufacturer to use a certain amount of preservative. If he goes higher than that amount of preservative, he at once has crossed the line of perfect safety and has come into the arena where his product may or may not be found to be unwholesome or deleterious. But I am pleading for a section which shall prescribe a limit as low as you choose to put it, and say: "Gentlemen, as long as you keep below that limit you are safe; you are not going to be reviewed by anybody, anybody with preconceived ideas or without preconceived ideas; nobody can touch you so long as you are below that minimum."

For example, Doctor Vaughan said in his evidence this morning that such and such a percentage, such and such number of grains of benzoic acid, were perfectly safe. In reply to a question, I think, of Mr. Adamson, he made that answer. And what we ask for is that you, in your wisdom, listening to all the evidence that you get as to the line of perfect safety, shall, by statute, render everyone who keeps below that line of perfect safety immune from molestation by any commission or any reviewing authority.

Mr. MANN. Mr. Gardner, might it not very readily occur that the amount of boric acid which could safely be used in the preservation of codfish, considering the fact that much of it is removed by soaking, would be altogether too great an amount to be used in some classes of canned goods?

Mr. GARDNER. Quite so; quite so; and I only ask for a limit that will be safe in the other things. We are so far below that limit after maceration in water that we can afford that.

Mr. MANN. Then do you want both provisions in the bill?

Mr. GARDNER. Not necessarily. I believe we would be perfectly safe without the soaking provision. If you put it down to one-half of 1 per cent, then whether you take your samples as they come out of the grocery store or after soaking we are safe.

Mr. MANN. Is the regulation hard codfish cured with boric acid?

Mr. GARDNER. The hard-cured fish? I do not know. I do not think any hard-cured fish exists to-day in the sense that you mean, unless it is cured on the Gaspé Peninsula, in Canada. But Mr. Carroll can answer these questions very much better than I can. I suppose you mean the old, sun-cured, long-time system, where you ate a mummied codfish, as it were?

Mr. GAINES. "Sun-dried yellow," we called it, did we not?

Mr. GARDNER. Like cheese.

Mr. MANN. We still see that occasionally.

Mr. GARDNER. That, I take it, has boracic acid in it. Is that correct?

Mr. CARROLL. In the summer time.

Mr. GARDNER. In the summer time it has boracic acid in it. That is mostly pollock, I expect.

Mr. MANN. In order to ascertain whether any particular part of that codfish has an excessive amount of boric acid in it, do I understand that we will have to analyze the entire fish and take the proportionate amounts on that?

Mr. GARDNER. We shall feel perfectly safe if you will give us both provisions; if you will take and analyze the part of that fish which you say has the most in it. In other words, take the most disadvantageous sample you can find in it, and analyze that. If you will put in a minimum of one-half of 1 per cent and give us the maceration-in-water clause, drawn to suit Doctor Wiley in any way that he may hereafter say, provided it permits us to measure that fish as it is ready for the table, you can take any piece of that fish, as I understand my constituents' views. (If I am incorrect, correct me, gentlemen.) Get the worst sample you can, from our point of view, and then analyze it, and we will be inside the necessary qualifications.

Now, Mr. Chairman, one word more on the point which you raise about the difference of analyses on the fish that I submitted to Doctor Wiley. There were several pieces. I telegraphed to Gloucester to send me on samples of fish without telling them what I wanted them for. They sent on perfectly fair samples, such as you buy everywhere. I will admit that you are liable to buy anywhere samples of fish which have in them more than one-half of 1 per cent of boracic acid, for the reason that as their business is conducted at present one of their employees is putting on a little too much and another is putting on a little too little, and it would require the greatest care

and supervision to see that the limit was not exceeded. Nevertheless, if you put this safety minimum in the law you force them to exercise such personal supervision that none of the samples will exceed exactly what is necessary and what is allowed by law, because if they were to continue their present practice, which is not thoroughly supervisory, they would be very liable to come under the provisions of the statute.

You can go to-day and find all sorts of analyses on fair samples of prepared codfish. You will find some, undoubtedly, that contain more than one-half of 1 per cent of borax; but there is no necessity in the world for using more than one-half of 1 per cent of borax, even in the hottest weather, for the longest transportation. If you put that minimum in there as the danger line to the manufacturer you force him to give that personal supervision which will insure that no employee, no matter how careless, shall exceed the minimum.

Mr. BURKE. The standard might be fixed considerably higher than this minimum that you are talking about?

Mr. GARDNER. Very likely. The Bureau of Standards may fix it higher; but what we want to get at is that the Bureau of Standards shall not be permitted to fix it any lower.

Now, Mr. Chairman, I would like to introduce the chairman of the Gloucester Board of Trade, who is the manager of our largest fish-packing establishment, in which he is a partner—the firm of Slade, Gorton & Co.

TESTIMONY OF THOMAS J. CARROLL, ESQ., PRESIDENT OF THE BOARD OF TRADE OF GLOUCESTER, MASS.

Mr. CARROLL was duly sworn by the chairman, and testified as follows:

The CHAIRMAN. Will you state your name?

Mr. CARROLL. My name is Thomas J. Carroll.

The CHAIRMAN. What is your residence?

Mr. CARROLL. Gloucester, Mass.

The CHAIRMAN. And your occupation?

Mr. CARROLL. Wholesale fish dealer.

The CHAIRMAN. How long have you been engaged in that business?

Mr. CARROLL. I have been ten years in the concern I am in now. I have been working at the business since I was a boy.

The CHAIRMAN. In the preparation of fish for food?

Mr. CARROLL. Yes, sir; I went to work at the business when I was 11 years old, and have been at it ever since.

The CHAIRMAN. Now proceed and make such statement as you wish.

Mr. CARROLL. Gentlemen of the committee, I am here representing the Gloucester Board of Trade. They sent me down to present their case to this committee.

I have too much good sense, gentlemen, to ask you to pass a bill here that will save my business from ruin, if you are convinced that by so doing you are legalizing the wholesale poisoning of the consuming American public. I do not ask you to do that, neither can I as an expert tell what effect boracic acid has on a human stomach. I know nothing whatever about that; I can speak only as a practical business man who has watched the business that he is engaged in all

his life can see the condition of that business as compared to its condition twenty-five years ago.

Up to within the last fifteen years, when the use of boracic acid as a preservative became general, it looked as though the salted-fish industry was going to ruin. That is to say, the demand grew less and less each year. Since that time the business has increased and increased, and the demand is greater than ever. My point of view is that the cause of that is that the fish has gone into consumption in so much better condition, owing to the preservative that is put on it, as compared with the condition of the fish before the preservative was used; or, in other words, that a great part of that fish formerly went into consumption in poor condition.

As to the application of that preservative and our reason for using it, I will state that the chairman is in error in one point, and my friend Congressman Gardner is in error on the same point. The chairman said that our reason for using that preservative was that in the old way it took two years to cure fish for the market, and that with this preparation we can get it out so much quicker.

The CHAIRMAN. I was simply repeating statements that were made here before the committee.

Mr. CARROLL. Yes, sir. You will pardon me, sir, but I want to correct that impression, because it is wrong. Our reason for using this preservative is that in the warm weather—in fact, we do not use it at all in the winter to any extent; it is not necessary—but in the warm weather, when we ship our fish that is thoroughly salted and cured, in excellent condition, after a while, owing to some action the heat has on that fish, the salt in it starts the fish to turn red, and that is the first stage of decay. After that, then, the fish becomes slimy, and after a while it is absolutely spoiled.

The CHAIRMAN. How is that fish prepared for market—in what packages, if any?

Mr. CARROLL. Various packages. The first, the old-fashioned way, is what we call the whole codfish. That is a fish that has the skin and all on it, which has only been dressed on board the vessel and salted. We just take a whole fish and take this preservative and put it in a powder can and dust it on the face of the fish, what we call the face of the fish—that is, the part that is open—and the fish absorbs that powder, that preservative. If it were not for that fact it would not prevent the decay. It must absorb it.

Then we have the boneless fish, put up in all kinds of packages—1 pound, 2 pounds, and 3 pounds.

The CHAIRMAN. That is, in tin?

Mr. CARROLL. No, sir; there is no tinned codfish put up in Gloucester. There is a little of it outside of Gloucester, but none whatever in Gloucester. That is put up in fancy labels, lithographed labels, or in 1 or 2 pound boxes. It is also put up in 40 and 50 pound boxes without all the bones being removed. In that way, when we are putting it up in that way, we dust it on in the same way as we do on the whole fish, excepting that in this way the skin and the bone are all removed, so that the powder gets on each side of the fish, and it penetrates and cures it in that way and prevents the decay.

The CHAIRMAN. You are now speaking of codfish, are you?

Mr. CARROLL. I am speaking of codfish; yes, sir; the dried codfish which we mention here.

The CHAIRMAN. How many kinds of fish do you sell or put up under the name of codfish?

Mr. CARROLL. Not any but codfish, sir.

The CHAIRMAN. None but codfish?

Mr. CARROLL. No, sir. There are lots of fish in Gloucester—and that is the point I want to talk to you about; we ask you gentlemen to pass a law that will prevent misbranding. We are down there doing an honorable, legitimate business, and we want protection against anyone who would do otherwise. We want it branded so that any fish that is sold shall have the name of that fish stamped on the box.

The CHAIRMAN. Are there not three varieties of fish that you gentlemen classify as codfish?

Mr. CARROLL. Well, there is the hake, the cusk, the pollock, the haddock, and the cod.

The CHAIRMAN. Five?

Mr. CARROLL. Those are the five fish.

The CHAIRMAN. They are all sold in commerce under the name of codfish, are they not?

Mr. CARROLL. I think myself they are sold to the consumer as codfish; yes, sir; but we could not do it if we wanted to, for the reason that any man who has any knowledge of the business could easily detect it.

The CHAIRMAN. Could you detect it in a pound package of fish?

Mr. CARROLL. Yes, sir. All men could not; but on that point we contend that the quality would count. The firm I represent—and I do not mean to advertise my firm or state any personal matter at all—sells its own brands; and it will appeal to you gentlemen that a firm that does that is going to keep up the quality of those brands. That is what we are doing, and as I said before, I think the hake, cusk, pollock, and haddock are almost all consumed by the public as codfish.

Mr. RICHARDSON. How do you detect the difference between these different fish?

Mr. CARROLL. I would have to have the fish right here to show you, sir. I could not explain so that you could tell.

The CHAIRMAN. Can you distinguish from the flavor of the fish?

Mr. CARROLL. Yes.

The CHAIRMAN. Without regard to its form?

Mr. CARROLL. In fibered fish it is a harder proposition. There are very few people, even the men who are thoroughly familiar with the business, that can tell a hake or a cusk, fibered up, from codfish.

The CHAIRMAN. Are they equally valuable as an article of food?

Mr. CARROLL. No, sir. The codfish is the highest priced of the dry fish that we have. The next, as a rule, is the cusk, and the others, according to the law of supply and demand, come behind. What I started in to say, gentlemen, was that all we ask is a law that will say that we can use a preservative, because without it we can not do business.

The CHAIRMAN. How did you do before this period of fifteen years ago which was spoken of?

Mr. CARROLL. They sent the codfish out without being treated with any preservative whatever.

The CHAIRMAN. It took longer to prepare it, then, did it not?

Mr. CARROLL. Not a minute longer; no, sir; not a minute.

The CHAIRMAN. How long did it take to prepare these dried codfish that we see in the country stores?

Mr. CARROLL. There are two varieties of dried fish. There are what we call the dry for the export trade, and the dry or pickle-cured for the local market. The former takes a long time, and it depends entirely on weather conditions, so I can not tell you. It may be a week, it may be a month, because they are all dried by the sun and air—that is, practically all. There are some steam dried. The pickle-cured fish—well, it is ready within ten days after it comes on the vessel; the best fish we have in the market.

Mr. GAINES. What is the reason for the difference between the export and the domestic fish?

Mr. CARROLL. The climate. We could not take a pickle-cured fish, such as we use in the domestic market, and send it to Porto Rico or any warm climate, because, whether treated with preservative or not, it would spoil. The heat affects the fish in that manner; it burns, as we call it, or cooks.

The CHAIRMAN. How do you prepare your codfish for the Cuban market?

Mr. CARROLL. We take the fish as it comes from the vessel, salt it on board the vessel, take and run it through water, as we say, wash it off in good condition, pile it up in great high piles that we call kinches, press all that water out of it for a few days, and then put it back on the flakes to dry. We dry them there, say, two good days, and wheel them in and pile them up again, then put them out again; and they are then in excellent condition if the weather is good.

Mr. RICHARDSON. Is any of the process of drying done otherwise than by the sun?

Mr. CARROLL. Well, for that market they use the steam dryers to some extent, but for the local domestic market we have the sun. It is not that we must have it, but it is to our advantage to have it, because the sun is a bleacher. Our fish should be white, and the sun whitens them.

Mr. GAINES. Do you send any fish to any European markets?

Mr. CARROLL. The firm that I represent does not; no, sir. In a small way, some are sent over across to Italy and other markets.

Mr. GAINES. Are they prepared with boracic acid?

Mr. CARROLL. The most of them; yes, sir; I think so, although I do not deal in that business at all. My business is purely with the American or local market—the domestic market.

Mr. MANN. There are large amounts of fish imported. Do you know anything about those?

Mr. CARROLL. Imported?

Mr. MANN. As to imported fish: yes.

Mr. CARROLL. The imported fish are different from ours, to some extent. There are fish from Norway that they call the stock fish, dried up so hard that they have to be soaked out for days. I am not positive whether those are treated with boric acid or not.

The CHAIRMAN. What is your method of applying this boracic acid to the fish, so as to get the precise quantity that is required?

Mr. CARROLL. We get men who we consider have knowledge of the necessary amount and tell them to use 1 pound to 100. I am going

to confess to you, gentlemen, in the line of what Congressman Gardner said, that in the past we have been careless down there, for the reason that we always felt that the boric acid was all soaked out of our fish, or practically all, and we were fearful that they might not get enough on to keep the fish, so we have never said a great deal to them about not putting on too much. But if you should pass a law, gentlemen, that says that we shall put on no more than a certain amount, then it is for us to look out and see that we do not exceed that amount.

Another thought, gentlemen, that escaped me, was that in the little I have been around—I have been to the Massachusetts legislature once—I found that the average legislator had an erroneous idea of how we used this preservative. We found that they thought that we took a lot of old, rotten fish, treated it with preservative, and put it on the market. Now, that is just what we do not do. We take the fish in its best condition and treat it with preservative, to prevent the decay that will necessarily follow in the warm weather if it is not treated. And in all my experience, gentlemen, as a practical fish man—I have been all through it, gentlemen, every part of it, except catching them; I never did much of that—I never in my life saw a case where a fish had spoiled, turned red, and had been treated and put on the market as a good fish.

Mr. MANN. How long would this codfish keep without the use of preservative?

Mr. CARROLL. That would depend on the weather. In very warm weather, or what we call, downeast, "muggy" weather, it would not stay good a week after it had been dried. It will stay good in the brine all summer, so that any fish that is packed in barrels or packages containing brine needs no preservative except the brine.

Mr. MANN. When it was taken out of the brine would it still keep good long enough to be sold and used?

Mr. CARROLL. In the warm weather? No, sir; no, sir.

Mr. MANN. Do you use a preservative with the fish that is packed in the brine?

Mr. CARROLL. Not if it goes into consumption in brine; or, in other words, if it is packed in half barrels and shipped to the grocer in that shape, it is not preserved with anything but brine.

Mr. MANN. Is there much that goes out that way?

Mr. CARROLL. Not of codfish. The farmers used to buy a barrel of what they called pickled cod—that is, a small fish in pickle—and there is a good deal of it sold now in New York State in that way.

Mr. MANN. How is the bulk of the codfish sold now?

Mr. CARROLL. Dry.

Mr. MANN. Dried in what form?

Mr. CARROLL. Dried and boneless.

Mr. MANN. Dessicated cod, do you mean?

Mr. CARROLL. Very little of the dessicated, shredded, or fibered is sold at Gloucester—I mean the boneless fish.

Mr. MANN. You mean what?

Mr. CARROLL. The boneless fish—our 1-pound package of the fish—just taking the skin off and with the bone removed. It is a large industry.

Mr. MANN. That is, the whole fish with the skin off and the bones out, you mean?

Mr. CARROLL. Yes, sir. Then it is cut up into a package probably about that long and about that wide and about an inch thick [indicating].

Mr. MANN. How is that packed?

Mr. CARROLL. It is packed in molds, as we call them. We have girls to pull the bones out and pack it in a mold, and that gives it the shape—about an inch thick and about that long [indicating].

Mr. MANN. That is the form in which we usually buy codfish in the market?

Mr. CARROLL. Yes, sir; that is the way most of the fish is sold.

Mr. MANN. Can that fish be kept and used without the use of some preservative?

Mr. CARROLL. Not in the summer time; no, sir.

Mr. MANN. Can it in the winter time, in an ordinary house?

Mr. CARROLL. Yes, sir; I should say so, in the winter time, in an ordinary house, as long as 1 pound would be likely to be kept there.

The CHAIRMAN. Suppose it was put up in tin?

Mr. CARROLL. I do not think that is practicable, Mr. Hepburn. I think that even then all the air has got to be taken out, and the fish has got to be sterilized in some way.

The CHAIRMAN. Would that harm the fish in flavor?

Mr. CARROLL. I think it would get the taste of the tin into the fish; yes, sir. Then, again, it would add to the cost. The fish is a poor man's diet, and anything like that would make it so expensive that we could not sell it.

Mr. RYAN. Where fish is used in the home and not soaked thoroughly before it is cooked, is any of the acid that remains in it deleterious?

Mr. CARROLL. As I said before, I——

Mr. RYAN. Is it objectionable in taste, I mean?

Mr. CARROLL. Oh, no, no; not at all. For my part, I will say, gentlemen, that I am a great fish eater, and if I sent one of the boys out of my office to get a piece of fish I never in my life inquired whether it was treated with preservative or not. That may not have any great effect, but that is my opinion.

Mr. GARDNER. Mr. Chairman, may I ask the witness one or two questions which I wish to elucidate?

The CHAIRMAN. Yes.

Mr. GARDNER. The chairman asked you about the methods you used previous to the last fifteen years. Is it not a fact that you can not extract the bone from the hard-cured fish?

Mr. CARROLL. Well, you could, but it would mean a lot of waste and add greatly to the cost of it.

Mr. GARDNER. As I understand it, your trade has largely grown up in the fish that you send out in little wooden boxes. I think I have shown them to the committee in the past year.

Mr. CARROLL. Yes, sir.

Mr. GARDNER. Where a pound of codfish is split up into nice little square cakes inside of a box?

Mr. CARROLL. Yes, sir.

Mr. GARDNER. The bones having been extracted?

Mr. CARROLL. Yes, sir.

Mr. GARDNER. And that would be perfectly impossible under the old system. I mean to say, it would be so expensive as to be prohibitive under the old system of curing codfish, which obtained, we will say, thirty or forty years ago?

Mr. CARROLL. Yes; and then, again, it would spoil, also.

Mr. GARDNER. And then it would spoil in transportation in summer, would it not?

Mr. CARROLL. Yes, sir.

Mr. GARDNER. One other question, with regard to the possibilities of canning. Is it not true that the cost of canning salmon is a very large part of the final cost of the article?

Mr. CARROLL. I think so; yes, sir.

Mr. GARDNER. And that the price of canned salmon, which is a fancy article, far exceeds the price that anyone would give for canned codfish, which is a cheap article?

Mr. CARROLL. It exceeds the price that most people would give.

Mr. GARDNER. In other words, that the moment you went into the cost of canning you would get such a high-priced article that it would be displaced by other kinds of food?

Mr. CARROLL. Yes, sir.

Mr. STEVENS. You have salted salmon, have you not, in the market?

Mr. CARROLL. We have salted salmon; yes, sir; salted in barrels, pickled; but that needs no preservative except the salt, if it has been cured recently.

Mr. STEVENS. But do you not see in the markets salted salmon in slabs, prepared in the same way with salted cod?

Mr. CARROLL. Do you mean in cans?

Mr. STEVENS. No; slabs of salted salmon, about that size [indicating], perhaps?

Mr. CARROLL. Well, I have seen the smoked salmon. I never saw salted salmon—I have seen it that way; yes, sir; taken out of the barrel and placed on a platter during the day, and at night probably put back into the brine again and kept there until morning. It is kept in there at all times.

Mr. STEVENS. Is that brine treated with preservatives?

Mr. CARROLL. No, sir; not at all.

The CHAIRMAN. What is the wholesale price of this codfish, as prepared by you?

Mr. CARROLL. It varies; depending on the label we put on it and the quality of the fish. The codfish is not all of one price. There are various prices of codfish caught on the different banks, and there are different manners of killing and curing.

The CHAIRMAN. What is the price of the best?

Mr. CARROLL. The highest-priced codfish we put out we sell to-day to the jobbing trade throughout the country at 16 cents per pound, less 10 per cent; that is 14.4, I think.

The CHAIRMAN. What is the price of the poor qualities?

Mr. CARROLL. We sell codfish to our trade to-day as low as 6½ cents. That is what they call the "bank codfish," and it has not all the bones removed. It has the smaller bones left in, but just has the skin taken off, and it is put up in 40-pound boxes.

I want to say to you, gentlemen, that we have a big industry down

there, more than you imagine; and if we are not allowed to use the preservative, that is ruined completely. Our firm employs 275 people in the manufacturing of codfish. We do not catch a pound. And there are others down there who have establishments almost as large that do the same.

The CHAIRMAN. You buy your fish from the fishermen?

Mr. CARROLL. Yes, sir.

Mr. RYAN. What is the output?

Mr. CARROLL. I should imagine about \$8,000,000. I would not say positively, but that is approximate.

Mr. WANGER. What is the price of borax per pound?

Mr. CARROLL. It varies there. I am speaking of the preservative as we buy it.

Mr. WANGER. Yes.

Mr. CARROLL. We buy the boracic acid and common salt, and it would vary from 5½ to 8, according to how much you buy and where you buy it.

Mr. RICHARDSON. You were going to explain to us how you detected the difference between those various varieties of fish, all of which are classed as codfish.

Mr. CARROLL. When it is shredded up there are very few men who can tell the difference; when it is dessicated, as the chairman calls it.

Mr. RICHARDSON. Do you want a law to require the brand—the label—to describe each one of those fish?

Mr. CARROLL. Yes, sir.

Mr. RICHARDSON. That is what you want?

Mr. CARROLL. That is what I would like to have. That is what the fish industry would like to have in Gloucester. For instance, we buy hake very cheap sometimes—for one-fourth of the price of codfish, sometimes. We sell it accordingly.

Mr. RICHARDSON. Your idea is that there is deception practiced upon the public?

Mr. CARROLL. Yes, sir; I am positive of it.

Mr. RICHARDSON. By the false description of those fish, or not having the description on the goods?

Mr. CARROLL. Yes, sir. I will admit that it will be difficult to prevent it to the fullest extent, but it can be prevented to a large extent. The grocers, some of them, would pay the low price for the hake and get the codfish price, and that hurts us.

Mr. RICHARDSON. Is there any difference in the nutritious qualities of those fish?

Mr. CARROLL. I should say so. I think the codfish is the most nutritious of any, although when it gets to the expert part of it I am not qualified to speak.

The CHAIRMAN. Is there any difference in the flavor of the two?

Mr. CARROLL. Yes, sir; the codfish is the best.

Mr. MANN. What makes you think that the borax soaks out of the codfish when it is prepared?

Mr. CARROLL. What makes me think so?

Mr. MANN. Yes.

Mr. CARROLL. I have a letter here in my pocket on that. We always assumed that that was the fact until last week. I sent a package, which I went out and put up in the ordinary way, put on all the

preservative necessary, to Mr. Henry Carmichael, the leading chemist of Boston. Here is his letter to us:

15 EXCHANGE STREET.
Boston, February 13, 1906.

SLADE, GORTON & Co., Gloucester, Mass.

DEAR SIRS: The sample of codfish submitted by you has been examined by me with results as under:

A portion of the sample was placed in water. After standing for three hours the water was drained away, a quantity of fresh water added, and the sample of fish was allowed to remain in it overnight. In the morning the water was again drained from the fish, and the fish was tested for boracic acid. Only an unimportant trace was found, which practically amounted to nothing.

Respectfully submitted.

HENRY CARMICHAEL.

Mr. MANN. Do you think the ordinary housewife soaks codfish as much as that?

Mr. CARROLL. She should, to have it palatable.

Mr. MANN. I know; but do you think she does?

Mr. CARROLL. With the exception of one kind of codfish, the desiccated, which we have always advertised as requiring no soaking, and that is just put in a cloth and warm water put over it, and I think myself, to be honest with you, that they do not get anywhere near that amount of boracic acid soaked out of it that they do out of fish soaked all night. It seems to me reasonable.

Mr. RYAN. Do you put anything on the label now to show that they have to be soaked over night?

Mr. CARROLL. Yes, sir; we put on our own packages—our own brands that we are pushing—the directions in order that the consumer may find it palatable and want that brand again.

Mr. MANN. The object of soaking is to take out the salt?

Mr. CARROLL. Yes, sir.

Mr. MANN. And if people prefer their fish pretty salty, they do not take out so much?

Mr. CARROLL. The codfish is pretty salty—too salty to be eaten.

Mr. MANN. They often prepare codfish with potatoes, and some people might not care to take all the salt out of the codfish. The potatoes need more salt. I know sometimes at the lunch counters we strike it very salty.

Mr. CARROLL. I do not think they ever get all the salt out of it, but they get most of it out.

Mr. BARTLETT. Do you know anything about the fish industry on the Pacific coast?

Mr. CARROLL. Yes, sir; it is the same as ours.

Mr. BARTLETT. You are connected with what association?

Mr. CARROLL. With the National Food Manufacturers' Association.

Mr. BARTLETT. You speak for them in this statement you have made before this committee?

Mr. CARROLL. Yes, sir; I should say that bill would be acceptable, and we would be pleased to have it.

Mr. GARDNER, of Massachusetts. May I ask Mr. Carroll just one or two more questions on the line that Mr. Richardson brought up, about misbranding?

The CHAIRMAN. Very well.

Mr. GARDNER, of Massachusetts. I understand you to tell the committee that you want the law so worded that the mere fact that hake

and haddock belong to the codfish family shall not be used as an excuse for branding them "cod," making a distinction between "cod" and "codfish?"

Mr. CARROLL. Yes, sir.

Mr. GARDNER, of Massachusetts. I want the committee to understand distinctly where it is to your interest that that deception should not be practiced on the public. These gentlemen make a specific brand of codfish, which goes out as "Gorton's codfish," and a large number of dealers in Gloucester selling the article without any particular branding on it incur no responsibility on themselves by the fact that they sell hake as codfish, whereas he, in his business, if he were to sell as his "Water Lily" brand hake instead of cod, would be at once detected by the retailer and lose his reputation.

Mr. CARROLL. I do not think so. That would put me in the position of pleading the cause of my own firm.

Mr. GARDNER, of Massachusetts. You do not in the least. I want the committee to understand the distinction between selling on a brand and—

Mr. MANN. You sell codfish all the way from 6½ cents a pound up?

Mr. CARROLL. Yes, sir.

Mr. MANN. That is all cod?

Mr. CARROLL. Yes, sir; that is all codfish.

Mr. MANN. Is there any way of legislating so as to distinguish between the different characters of cod—I do not know what you call them—prime or extra, or anything of the sort?

Mr. CARROLL. No, sir; that would have to be up to the buyers or consumers. I could not see any way you could get a law for that.

As to Mr. Gardner's questions, I do not want to leave any doubt in the minds of the committee. I do not mean to cast any reflections on anybody; I do not mean to cast any reflections on the grocer. He might buy a package of cod costing him 4 cents a pound, and he should know it is not codfish, but his customer coming in and asking for codfish, he would not make any explanation, but he would sell her that fish and get the codfish price.

Mr. RYAN. You could not prevent that?

Mr. CARROLL. No, sir; because it would take an expert to tell the difference.

(At this point, at 4 p. m., the committee went into executive session.)

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,

HOUSE OF REPRESENTATIVES.

Monday morning, February 19, 1906.

PURE FOOD.

Committee called to order at 10.15 a. m.

STATEMENT OF A. C. FRASER, PRESIDENT WESTERN PACKERS' CANNED GOODS ASSOCIATION.

Mr. FRASER was sworn by the chairman.

The CHAIRMAN (Hon. W. P. HEPBURN). State your name, please.

Mr. FRASER. A. C. Fraser.

The CHAIRMAN. Your residence?

Mr. FRASER. Manitowoc, Wis.

The CHAIRMAN. What is your business, please?

Mr. FRASER. I am a canner of vegetables and fruits.

The CHAIRMAN. What connection have you with the canners' association?

Mr. FRASER. There is no national canners' association. I have been for three years president of the Western Packers' Canned Goods Association, which comprises all of the States north of Pennsylvania.

The CHAIRMAN. What is the membership of that association?

Mr. FRASER. The enrolled membership is about 70 packers.

The CHAIRMAN. What are they engaged in?

Mr. FRASER. Packing vegetables and fruit—principally vegetables.

The CHAIRMAN. Simply packers.

Mr. FRASER. Yes, sir.

The CHAIRMAN. Has that association taken any action on the subject of pure-food legislation?

Mr. FRASER. The association that I have been president of, and which I represent here to-day, has just had a meeting at Atlantic City, a joint meeting with the Atlantic States Packers' Association, which comprises all of the Northern States east of the State of Ohio, including Pennsylvania and New York. This joint meeting was an annual convention, and has been attended not only by the members of the association, but we have had representatives there from the California association, not official—sometimes they come officially, but this time they came unofficially. We have had representatives from all other States—practically all other States—engaged in the same line of business.

The CHAIRMAN. Was this a large convention?

Mr. FRASER. Yes, sir; the largest convention that we have ever had. Our register comprised over 1,200 people.

The CHAIRMAN. Representing different packers?

Mr. FRASER. Packers, and lines of industry allied with the packing of vegetables.

The CHAIRMAN. Did that society take any action with regard to pure-food legislation?

Mr. FRASER. The joint meeting comprised of these packers and people engaged in allied work adopted a set of resolutions, which I thought best to come here and explain the composition of, the associations adopting them, and also under what conditions they were adopted. If you will permit me, I will read the resolutions, but before that I would like to state under what circumstances the resolutions were adopted.

The CHAIRMAN. You may do so, briefly.

Mr. FRASER. The packers of canned goods have for a long time felt the necessity for a national law regulating canned goods, for the reason that at the present time each State has a law, and the laws of the several States are different. In some States the laws are not enforced, and the consequence is that canned goods of the various packers with a purity—I do not say pure, because I believe they are all pure—but we feel that the odium which rests upon the name of impure goods which has been circulated by the press and by magazines and which originated from experiments made in the Bureau of Chemistry, as represented by Doctor Wiley, has, we believe, placed an unjust stigma on the purity of canned vegetables. The consequence has been that,

we believe, the sale of these goods has been restricted to a very large extent; the people are not eating canned vegetables as we believe they ought to, and we think they are just as cheap as other vegetables and just as pure.

Now, it was felt that it was very important that the canners assembled in large numbers and representing a large territory should take some stand and come out as a whole and say where they stand, whether in favor of legislation or not. As president of the Western Packers' Canned Goods Association and as a member of the committee appointed for that purpose, I invited Doctor Wiley to come to the association and explain, so far as it was possible for him to do so, his views with respect to the laws. There was a very great unwillingness on the part of canners to come out in favor of any particular law, for the reason that they did not understand the provisions of the law, and they felt the very great importance, especially, of the appointment of a committee on standards. It was the general feeling—the general understanding, I may say—that the committee on standards was to be appointed by the Bureau of Chemistry, and it was thought that it was too large a power to place in the hands of any one man and that it was absolutely bad to put that industry under the control of one individual.

Now, that was the feeling, and it was felt by the leaders that the people did not understand how that committee was to be appointed or what power they would have, so Doctor Wiley was asked to come and appear before them. I saw before Doctor Wiley appeared that he was going to come into a hostile crowd; there were very many expressions of disapproval of him. When he came I asked him what he would like, if he wanted the people to criticise him, ask him questions, or did he simply wish to deliver his address and stop. He said that he wished the greatest freedom of expression of opinion, that he wanted to answer all of the questions that we could ask him, that that was what he was there for, and that it was his duty as well as pleasure to answer these questions.

Doctor Wiley read his address before an assemblage that was large enough to fill the hall so that there was not standing room. And I want to state that the reason why the hall was so crowded was that those present were not all simply members of the association; they were men engaged in all lines of work—jobbers, packers, brokers—from all over the country, and a large number from Canada. I stated to the audience, in introducing Doctor Wiley, that they were at liberty to ask him any questions they liked in connection with the administration of the law and the law itself. They did so; he answered every question and answered it freely. Before he left I still solicited more questions, and nobody seemed to desire to ask any more, and the resolutions were put before the association. I then asked for a vote on the resolutions by standing, and there was not a man in the hall, gentlemen, as I know, that voted against it.

It was not thought best to indorse any particular law, to mention the name of any particular bill, for the reason that the canners themselves did not know enough about the details of the law, and they thought best to leave that to Congress itself; but I wish to say that they had confidence in the new law with which they believe Doctor Wiley will be connected. They had confidence enough in him after he was there and explained everything to them to indorse not only

the resolutions relative to pure food, but as a general proposition to indorse a law for which Doctor Wiley was standing, as we believe, sponsor. We did not mention any particular law; that was not our province; but the resolutions were made to heartily indorse national pure-food legislation—that is, legislation approved by this committee or in the Senate. The resolutions are as follows:

RESOLUTIONS.

The Atlantic State Packers' and Western Packers' Canned Goods associations assembled as a joint convention at Atlantic City, N. J., on the 14th day of February, 1906, after having heard with great interest an address by Prof. H. W. Wiley, of the United States Department of Agriculture.

Resolved, That whereas the fruit and vegetable packers of the United States are conscious that there is probably no other form of fruit product sold which is so pure and free from adulteration as canned fruit and vegetables; and

Whereas, it is for the interest of both the canners and the consumers to have, any and all adulteration done away with; and

Whereas vexation and damage result from a multiplicity of partial, inadequate, and conflicting regulations, they hereby petition the Congress of the United States to forthwith pass such a pure-food law as the judgment of the Congress shall determine, which law shall at the same time be stringent and capable of rigid enforcement.

GEORGE G. BAILEY,

President Atlantic State Packers' Association.

A. C. FRASER,

President Western Packers' Canned Goods Association.

HENRY P. CANNON,

Secretary Atlantic State Packers' Association.

IRA S. WHITMER,

Secretary Western Packers' Canned Goods Association.

When I left Atlantic City I wanted to find out something more about the committee on standards. So when I came to Washington I went to Doctor Wiley's office and I stated to him explicitly that the canners felt that that was too great power to place in the hands of one man, and they thought that they could not stand for that. Doctor Wiley has furnished me information taken from the record which shows me that a law recognizing the committee on standards is already in force, and that it takes away the formation of that committee, as I understand it.

The CHAIRMAN. When was that convention held?

Mr. FRASER. On the 14th of February last—from the 12th to the 16th.

The CHAIRMAN. Where?

Mr. FRASER. Atlantic City, N. J.

The CHAIRMAN. What is the membership of the Atlantic States Association of Packers?

Mr. FRASER. I am not familiar with that.

The CHAIRMAN. Is it a large association?

Mr. FRASER. Quite a large association; yes. It comprises all of the reputable packers in those States—practically all the reputable packers; all in New York State. I know that nearly all of the Eastern States are represented there.

Mr. BARTLETT. Do most packers put a preservative in their canned goods?

Mr. FRASER. I don't know about that.

Mr. BARTLETT. Most of your goods are canned in tin, are they not?

Mr. FRASER. Altogether in tin.

Mr. MANN. You referred to vegetables. Does your association can, also, any fruits?

Mr. FRASER. In Michigan we have some packers that are engaged in packing fruit. Very largely we are the packers of vegetables.

Mr. CUSHMAN. What vegetables do you can?

Mr. FRASER. Peas, corn, tomatoes.

Mr. BARTLETT. You don't put in any preservative?

Mr. FRASER. Not at all; it is absolutely unnecessary to put a preservative in them. We sterilize wholly with heat, which is not only the cheapest, but the best, and it is absolutely unnecessary to put a preservative in a can of vegetables. I have been practically in the canned-goods business for seven years, and am managing one of the large canning factories. We are the largest cannery of peas in the United States and probably in the world. We have always had peas sterilized altogether by heat. We have never, with the exception of one year when we bought out a factory that had been using saccharine, and as a matter of experiment we desired to test the question of preservation by sterilizing or by the use of saccharine, and we quit after one year using saccharine—without exception we have used nothing but sugar, salt, and water.

Mr. BARTLETT. What are the laws on canned goods?

Mr. FRASER. I think there are laws on the statute books prohibiting the use of saccharine in canned goods.

Mr. BARTLETT. Is there any State law that interferes with you in the disposition of your goods preserved by sterilizing by heat? Is there any law with which you come in conflict or that hinders or annoys you in any way or delays you in selling your products—any State law? You say you want uniformity of State law, so that you will not be annoyed in selling. How do the present State laws interfere with you? I am speaking with reference to the goods you sell.

Mr. FRASER. The only difference and the only way in which it affects us in Wisconsin, most of the laws prohibit the use of saccharine as a sweetness. There is a large amount of saccharine used as a sweetener, not in violation of any law. The canners believe that it is not injurious; they have used it as a sweetener for many years, and the use of saccharine mixed with canned vegetables is very much cheaper. For instance, it costs us in the neighborhood of \$10.00 for sugar, but there are canneries in the State where saccharine is used, canning about the same amount of vegetables, and their expenditure is only about \$750. It makes a very large difference.

Mr. ADAMSON. How much does that increase the cost of a single can?

Mr. FRASER. We have not figured that out. It costs an enormous amount to the packers. It is a matter of \$9,000 to the packing house which I represent.

Mr. MANN. Do you use coloring matter?

Mr. FRASER. No, sir.

Mr. MANN. You can American peas mostly?

Mr. FRASER. Yes, sir.

Mr. MANN. French peas are colored, as a rule, I believe?

Mr. FRASER. As I understand it; yes, sir.

Mr. MANN. They are all imported?

Mr. FRASER. Yes, sir.

Mr. MANN. Do you put up more than one grade of canned peas?

Mr. FRASER. No, sir; not more than one quality. As the peas get larger in size of course they naturally become of an inferior grade.

Mr. MANN. Do you label them differently?

Mr. FRASER. Yes, sir; entirely.

Mr. MANN. How many different qualities of peas are usually put up in canneries, do you know?

Mr. FRASER. I can only speak for the canning house that I represent. We have five different sizes of peas, and the peas of the same size may be a little more mature, which would make two different qualities of that same pea. Only the very choice peas are put under the best label. That would make seven different grades.

Mr. MANN. Do you have standard designations that are usually recognized, or do you simply have special names of peas?

Mr. FRASER. We have special names for peas in our house.

Mr. MANN. Is there any standard designation for the best quality of peas in the market?

Mr. FRASER. I don't think there is. I think almost every canning house labels its goods with its own label, or a label which would represent the best grade.

Mr. MANN. So it would not be possible to fix a standard for a certain quality of peas?

Mr. FRASER. Except in so far as purity is concerned; it would not be in so far as quality is concerned.

Mr. MANN. I mean as to quality; you say they are all pure?

Mr. FRASER. It would be impossible, in my judgment, to fix any standard of quality. It would depend upon how mature the pea was.

Mr. MANN. Is there any rule as to how much solid matter there shall be in a can of pease and how much liquid matter?

Mr. FRASER. I don't think there is any rule that I know of. We fill our can absolutely full of peas, just leaving space enough for the liquor to mix in.

Mr. MANN. Is that the usual custom in all of the grades of peas?

Mr. FRASER. I think so, as far as peas are concerned.

Mr. MANN. You don't can anything but peas?

Mr. FRASER. Nothing but peas. I would not like to state anything further than what I know.

Mr. BARTLETT. You say in reference to the law that the State prohibits the use of saccharine. Your idea is that this bill ought to permit the use of saccharine?

Mr. FRASER. I don't know that it ought to permit that; I would not like to pass on that.

Mr. BURKE. Are any of the packers, the people composing the association of which you are president, engaged in the manufacture of tomato catsup or the putting up of pickles?

Mr. FRASER. That is quite possible, as that is a branch of their business.

Mr. BURKE. Do you know anything about the manufacture of catsup?

Mr. FRASER. No, sir.

Mr. BARTLETT. You don't put up tomatoes?

Mr. FRASER. No, sir.

Mr. GAINES. How long would your products keep after opening? You know that a bottle of catsup is supposed to remain open until it is used.

Mr. FRASER. We can peas entirely.

Mr. GAINES. How long would they keep?

Mr. FRASER. Not more than twenty-four hours.

Mr. GAINES. So that you would have to use a preservative in order to keep them in the can any length of time after they were opened?

Mr. FRASER. I should judge so. At any rate I know they do not keep if left open.

Mr. MANN. How long a season do you occupy in canning?

Mr. FRASER. About six weeks.

Mr. MANN. What does your plant do the rest of the season?

Mr. FRASER. It lies idle. We take up all of the time getting ready for the next season.

Mr. ADAMSON. You do not have fresh vegetables all the year round to can?

Mr. FRASER. No, sir.

Mr. ESCH. Were any Pacific-slope canners represented in this association?

Mr. FRASER. We had two or three people from the Pacific slope. That is why I wanted to mention that it was a unanimous vote. Everybody voted for this resolution, everybody present, the jobbers, the brokers, the packers, and the visitors—everybody.

STATEMENT OF WARWICK M. HOUGH, ATTORNEY FOR THE NATIONAL WHOLESALE LIQUOR DEALERS' ASSOCIATION OF AMERICA.

Mr. HOUGH. I appear as the attorney for the National Wholesale Liquor Dealers' Association of America.

The CHAIRMAN. We will have to ask you to stand aside, as we are endeavoring to get facts. We will ask for lawyers, if we need them, later on.

Mr. HOUGH. I thought that I could be heard on just one feature of the bill, and I wanted to say to the committee that the bill as drafted does not apply to all kinds of liquors, as I think I can show the committee in a very few words—that is, if the committee will hear me.

I am a member of the firm of Klein & Hough, of St. Louis. We are general counsel for the National Wholesale Liquor Dealers' Association of America, an organization comprising distillers and dealers who represent in volume over three-fourths of all of the business in the United States. Of course I do not wish to encroach upon the time of the committee if they do not—

The CHAIRMAN. We will hear you briefly. What is your name, if you please?

Mr. HOUGH. Warwick M. Hough, of the firm of Klein & Hough, attorneys at law, of St. Louis, Mo.

The CHAIRMAN. Whom do you represent?

Mr. HOUGH. I appear for the National Wholesale Liquor Dealers' Association of America, an organization which comprises the majority of the distillers, wholesale distillers, and rectifiers of the United States: and represents, it has been asserted, almost 90 per cent of the volume of business, a business from which the Government gets one-fourth of its entire annual income.

The CHAIRMAN. When you say that you speak for the distillers being represented in this association, what proportion of the distillers?

Mr. HOUGH. I have never figured up the exact number, but I think

it is over half. It has been stated at the hearings before Congress that there are over half of the distillers represented—

The CHAIRMAN. Half in number, or in volume of business?

Mr. HOUGH. One-half in number—I mean one-half of the volume of business. When I made the same statement of a year ago before the Ways and Means Committee, one of the gentlemen present said he did not think it was that much. I do not think it makes any difference whether there are a few more or less, but I represent their phase of the business.

The CHAIRMAN. You represent them here as their attorney?

Mr. HOUGH. As their attorney.

The CHAIRMAN. Are you their regular attorney, employed annually?

Mr. HOUGH. I have been for years; not specially employed on this case. I was employed originally in the internal-revenue business, as it relates to distilled spirits, and as a result of having interpreted the internal-revenue laws of the United States it became necessary, of course, for me to understand the distilling business, the absolute business; and in that way I have been drawn into occasional hearings before Congress upon questions affecting the distilling, wholesaling, and rectifying business.

I do not care to discuss the general phases of the law. I have my own views as an attorney with respect to that, and I do not suppose the committee would care to hear them. But with reference to any bill that is to be prepared I think it will be agreed that it should apply to all equally, and that it should not be so drafted as that it excludes any product. In order that the committee may understand the point that I wish to make, it may be necessary for me to remind the committee in a few words of certain facts in reference to the method whereby whisky is produced.

The term "whisky" is of Celtic origin, and, according to the encyclopedias and all works on the subject, came from the word "isque," which was an abbreviation of "isquebeoh," which was also derived from "isquebaugh," which was the original Irish term. It dates back to the year 1200. I have here a book which I picked up in Dublin last year, published first in 1821, a history of inebriating drinks, a philosophical and scientific treatise wherein that statement is made, and in which there is a discussion of this very question. I am not going to read the whole book to the committee, but I want to refer to it.

Now, the term "whisky" and the word "isquebaugh," from which it came, were applied originally to what we now call a blended or compounded liquor, and it was never applied to a straight distillate at any time in the first six hundred years during which the term was a part of the vocabulary of the English language; so that what is known to-day as a blend or compound is the original product to which the term "isquebaugh" and then "whisky" applied. But I may say that never in the seven hundred years during which the term has been used has it been properly applied to all of the products of the distillation, or rather all the products of the fermentation, which are taken from grain by the subsequent process of distillation. But it invariably excluded a part of what is known as the "heads" and a part of what is known as the "tails," the object being to get the

middle of the distillation, which is ethyl alcohol and water, sometimes placing certain flavoring matter therein which are not regarded as impure. But the extreme heads and tails are what is regarded as the particular impurities which should be taken out of the liquor before it is entitled to be called whisky and before it is entitled to be used as a beverage.

The CHAIRMAN. Let me ask you. In order to secure ethyl spirits, what is taken out of the whisky?

Mr. HOFF. I was just going to explain that. I will just state briefly and in crude language the process, so that those members of the committee who have not looked up the subject in the reference works lately may have a clear conception of it.

Whisky is made from grain. Originally it was exclusively from malt—malted grain. The reason of that was that malt was the article which was first known to contain diastase, which is the power that converts starch in grain into sugar, and you must have sugar before you can get alcohol. When you have the sugar the fermentation process produces the various alcohols. Afterwards it was learned that other grains than barley contained starch, and that malted barley contained more diastase than was necessary to convert the starch into sugar, and that led, several hundred years ago, to the use of other grains than malted barley, which were mixed with malted barley for the purpose of having the starch converted into sugar. I may say that originally whisky was made exclusively from malt. After there was a mixture of the different grains the distinctions were not kept up.

Originally whisky made exclusively from corn was called Bourbon whisky, which originated in Bourbon County, Ky., but which is now, of course, not significant of any geographical location, but significant of a particular product—that is, whisky which is flavored and which is distilled exclusively from corn. So rye whisky originally was a whisky which was exclusively distilled from rye. But inasmuch as in all times in the past the product which was consumed by the consumer was not the straight distillate, but the blended or compounded article, the distiller got into the habit of attempting to make this blend before distillation by mixing grains. But I may say here that apart from the question of flavor, brandy, rum, or whisky—Bourbon or rye whisky—are all identical in substance, and the substance is ethyl alcohol and water. Now, the distiller got in the habit of mixing grains in order to attempt to get the flavor, which theretofore had only been obtained by the process to which the rectifier and the blender subjected the article after it had passed from the receiving cistern of the distiller, and that has led to the process in existence to-day.

The process, then, is without reference to what grains are used. You grind it up like making a mash at home, and you subject it to heat and the action of the diastase, and it is converted in mash tubs into sugar. They then transfer it to fermenting tubs, and under certain conditions it ferments for a greater or a longer period of time, and the length of time during which it ferments has everything to do with the character of the product, and it has also everything to do with whether or not it is likely to be a good product or a bad product or contain a very large amount of impurities or a very small

amount. It is the fermenting process which produces all of the alcohols, and after it is properly fermented it is called wash. It is then put in the wash still. It is then heated underneath, this mash that is in it, and the volatile substances in it—that is, water and alcohol—are carried over, the same as they would pass out of the spout of a kettle, which is the neck of the still, into the worm, around which cold water is placed. It is then condensed into a liquid and runs into what is known as a low-wine receiver.

I am not going into all the details, but just enough for the committee to understand this process. The process varies in different countries, and in different distilleries in the same country, the object of all of it being to get an alcoholic liquid which contains the proper flavor with the lowest amount of impurities, or things which are detrimental or unwholesome to the health of the consumer. These low wines are put in another still, which is called the low-wine still. It then comes out in what is known, and what has been known exclusively for about seven hundred years, as high wine. That product may be more or less pure, but is never fixed—that is, I mean, has no constants as to the ingredients, because it depends upon the length of time that the fermentation has taken place and the character of the grain used and the character of the yeast to assist in fermentation, because if the yeast was not pure the product would not be pure, in the common everyday sense of the word.

Now, the Commissioner of Internal Revenue a few years ago made a report on the various substances produced in that way, and he says:

The object of the distiller is to separate the alcohol contained in the fermented wort from the foreign matter with which it is associated. For this purpose he has resort to a still. The alcohol thus produced is not, as has been well known for some time, a single substance, homogenous, always the same in its nature, form, and effects; on the contrary, it is an extremely variable, of diverse chemical composition and physical characteristics; it is not one alcohol, but many, which chemists have divided into several series. The distiller commonly divides the product of his still into three classes. First, products with a bad taste, the heads; second, alcohol, properly speaking; and third, products with a bad taste, the tails. The first and the third are kept separate from the middle, which is the most valuable portion. The following table, according to Doctor Rabuteau, gives the boiling point of these different products.

And it is because we have different boiling points that the distiller is able to separate the good from the bad, and turn out a good product or a bad product, as the case may be. Now, the product, the bad taste, which is commonly called by the distiller "the heads," is aldehyde and acetic ether, the first of which boils at 69° F. and the second at 162° F. The next is alcohol, commonly called grain spirits, or ethyl alcohol, which boils at 172° F. Then the products with a bad taste, the tails, are propyl alcohol, butyl alcohol, amyl alcohol, valerianic ether, and amyl acetate, and other nameless products, which have a boiling point in their order in which I have just stated them of 206° F., 228°, 269°, 271°, and 276° F., leaving out the decimal fractions. You will then see that the tails, which are deleterious to the health, have a boiling point higher than water, which is 212°, and higher than ethyl alcohol, which is a little less than water.

Now, with respect to the heads, the Commissioner says:

It is fortunate that the products of the first class have such low boiling points that they can be gotten rid of very easily by fractional distillation, for they are dangerous poisons.

I will not read all of this to the committee, but I come down to—

The talls, or faints, as well as the still less volatile or ordinary fusil oil, are mixtures of several alcohols and fatty acid ethers, their relative quantities depending upon the nature of the materials used in mashing, belonging to the higher series of alcohols, and consequently possessing great toxic effects. Propyl alcohol was discovered by Chancel in 1853—

and without reading it I will state that that is the least dangerous of the three, the butyl alcohol the next dangerous, and amyl alcohol the most dangerous of all of the three mentioned.

Butyl alcohol has the effect of paralyzing the vasomotor nerves, and its action, according to medical men in this country and abroad, is that it has a totally different action upon the human organism from that of ethyl alcohol. It paralyzes the vasomotor nerves, and produces all of the ill effects which come from drinking. The amyl alcohol attacks certain parts of the brain, and while it may be an infinitesimal quantity, it leaves some effect, which is never left by pure ethyl alcohol. On that subject I will say that if I should open a bottle of amyl alcohol in this room, in a little while you would find difficulty in breathing, it would give you a headache, and if you should put a drop on your clothes you would not get rid of it for some time.

Mr. ADAMSON. In your services in connection with internal-revenue business you learned about the illicit distilleries around over the country, did you not?

Mr. HOUGH. Only as I have discussed it with the Commissioner of Internal Revenue as bearing upon the old question that has been before Congress for a long time—about reducing the taxes.

Mr. ADAMSON. It is evident from your statement and what you have read there, that there is a distinction involving a very great care in the operation of a still. Do you not think it exceedingly unlikely that these illicit distillers would be able to do that work, and that their liquor would be exceedingly dangerous?

Mr. HOUGH. Some are and some are not. I have heard that these illicit distillers, some of them, have a pretty clear conception about this question, and know how to regulate this first and last run. They treat it as fusil oil at both ends. If that is done, then the middle is harmless—as harmless as any that can be produced by the most expensive methods, the most intricate methods, known. But if the illicit distiller lets it all go in, he then has a product which is very dangerous, depending, of course, upon the length of time which he permits the fermentation to take place. I have been informed by chemists that the more fermentation the more poisonous oil will be produced.

Mr. BARTLETT. What do you mean by “vatted liquor?”

Mr. HOUGH. Vatted is a word which was used originally in England. It meant that after the product was taken from the receiving cistern of the distiller it is put in a vat, rectified and redistilled and purified and refined as much as could be, taking out these high alcohols, and then adding such coloring and flavoring matter as was needed to satisfy the taste of the particular trade; because no matter how any whisky is produced, no matter how pure or how impure it is, the natural color of whisky is as white as water, and if it has any coloring whatever it has been produced by the addition of extraneous matter applied in one way or another. A recent way in this

country, and a way which has never obtained in foreign countries, is to char the barrel, which allows it to get a larger percentage of tannic acid than it would get if it was put in the barrel without being charred. But that is something you can not avoid. If you want to get the other effect——

Mr. RYAN. All barrels that contain straight whisky are charred?

Mr. HOUGH. No, sir; in the whole world I do not suppose there are——

Mr. RYAN. In this country?

Mr. HOUGH. In this country there is a great deal of whisky produced in Tennessee that is not placed in charred barrels, and no brandy produced in this country or any other country is ever put in charred barrels, but the brandy color is produced by putting in caramel or burnt sugar.

Mr. ADAMSON. Is that how you make the difference between yellow and white whisky?

Mr. HOUGH. Yes, sir. The color of whisky years ago was not the reddish color of to-day. The saffron color was supposed to represent merit; the yellow color was supposed to be healthful, a sign of a healthy whisky, just like the cross which is sometimes put on different productions is supposed to have a certain significance; and it originated in the time and the history of inebriating drinks when there was more superstition about it than there is to-day.

Mr. ADAMSON. In separating the heads, do they come out on both runs or only on one?

Mr. HOUGH. Usually on the last. There is nothing to prevent them from attempting it in the first run, and I was told by one of the distillers in England that they sometimes did separate some of it on the first run.

Mr. BARTLETT. What is the difference between vatted whisky and blended whisky; is there any difference at all?

Mr. HOUGH. Vatted is putting it into this big vat and subjecting it to a process which has been well known in the trade as aiding the coloring and flavoring. Now, that may be a blend also, if the mixture is two spirits together; but usually blended and vatted do not mean the same thing. It indicates that it has been subjected to treatment, which was at the time the term originated well understood by the public and the trade. It was always an improvement.

Mr. GAINES. Is that what is known as rectifying?

Mr. HOUGH. It was a part of the process to which the separate distillate, which was then known as the high wine, was subjected by the rectifier, and that process continued in this country until the present internal-revenue laws were enacted in 1866 and 1868, which are now used for the purpose of getting an added value for a trade name, by selling the product under a trade name, which belonged to the distiller, and for the purpose of avoiding the characterizations which were the result of the internal-revenue laws. The distillers devised certain methods of partial rectifying of the product to make it fit to drink without subjecting it to these other processes. But I will get to that directly.

Mr. ADAMSON. I would like to ask you if there is any difference between rectifying whisky and blending?

Mr. HOUGH. Yes, sir. Now, I would like to say that it has always been supposed that fusel oil that was left in the barrel would become

oxidized in time if there was enough charcoal in the barrel and it was subjected to a sufficient amount of heat. Of course we all know that charcoal has its limitations. There are certain conditions under which oxidization will take place, and there are certain conditions under which this oxidization will not take place. Now, Doctor Wiley thought he had discovered sufficient evidence to justify his saying that there was never any decrease in the fusel oil, and that the only position for those who had fusel oil in the whisky to take was the position which Doctor Wiley took before the Ways and Means Committee last week—that it was a pleasant drink. Now, that has been contrary to the common understanding upon that subject. It is contrary to all of the authorities in England and America, and, I think, contrary to the views of this committee, if this committee will look into it. I have a little fusel oil here, and I have several bottles containing these different kinds of alcohol. Here [indicating] is a bottle of amyl alcohol. In this report it says:

It kills rapidly, according to Dujardin-Beaumetz, in doses of from 1.59 to 1.75 grams per kilogram of the weight of the animal. Even in small doses it exerts a powerful effect, bringing about intoxication and coma, producing at first a violent excitement of the nerve centers, followed by depression of the sensitive and motive forces.

Now, the report says further on:

All spirits consist of a more or less diluted ethyl alcohol, containing traces of the higher-boiling compounds, commonly called fusel oil, the proportion depending on the care exercised by the distiller in stopping the distillation when the vapor temperature rises above the boiling point of ethyl alcohol, and certain flavoring bodies, depending on the material employed.

Now, in this country that product which was turned out by the distiller prior to 1860 was called high wine, as distinguished from low wine, sometimes spirits of wine, and sometimes plain wine, for abbreviation's sake. That product was invariably sold, excepting in rare cases, to the rectifiers living in Maryland and Pennsylvania and other States, which were the centers of that class of business. Various things have been done to the product in order to get this fusel oil out. The distiller put in different kinds of things, sometimes chunks of bacon, and it would be entirely consumed, and various devices have been resorted to to purify this product and make it fit to drink without sending it to the rectifying centers, which were three or four in this country—Baltimore, Philadelphia, Pittsburg, and Cincinnati.

In those days there was never any brand put upon the distiller's package—that is, upon the product that the distiller turned out. All the brands that appeared upon the barrels of whisky were put there by the rectifiers, and the commercial whisky in those days was the whisky turned out by the rectifiers which had been rectified—the rectifying, the refining—treated to the vatted process, the aeration process, all calculated to improve, and to which coloring and flavoring were added. So that the term "whisky" has for nearly seven hundred years been applied almost exclusively, at least for five hundred years, to the product which had been treated in that way, and to which, for commercial purposes, a distinction is made sometimes today, as the blended or compound variety.

When the internal-revenue laws were passed, the present distinctions commenced, or rather originated. The internal-revenue laws, as all know, were not passed for the purpose of regulating the business

of taking care of the spirits turned out, but simply to see that the tax exacted by the Government shall be collected. So that all of these supervisions which have been referred to by some for the purpose of creating the impression that supervision was for quality or wholesomeness or healthfulness were not for that purpose, because they paid no attention to the percentage of fusel oil or heads or tails, only that the amount of spirit which the Government figures should be produced is produced, and that it does not get away from the distillery warehouse until the tax is paid.

Mr. BARTLETT. Now the Government fixes it so that such a quantity shall be produced from a given quantity of material?

Mr. HOUGH. To produce at least 80 per cent.

Mr. BARTLETT. That requirement can be complied with ordinarily now?

Mr. HOUGH. The old-fashioned distillers could not do that.

Mr. BARTLETT. That is what I mean.

Mr. HOUGH. The production has been increasing with the improvements in machinery. In the old days they probably would not get more than a gallon from a bushel of grain, because of the primitive methods used.

Mr. BARTLETT. Take the distillation of fruits, of peaches; it is very hard to produce the amount required by the Government?

Mr. HOUGH. Very hard. Frequently those distillers are required to pay a tax on the deficiency. The theory of the internal-revenue laws is that they should produce it.

Mr. ADAMSON. Are there not certain substances that the distillers can use to enable them to get up to that standard?

Mr. HOUGH. I don't know of any substances. They may use things to increase the fermentation—for instance, yeast will do that, I am told. But they must watch it closely and see that the grain is of the best quality. They want the grain, of course, that contains the largest amount of starch; the more starch the more sugar, and the more sugar the more alcohol.

Mr. ADAMSON. If they did use any other substance to help them come up to the standard required and there was any impurity, would the Government officials detect it or try to?

Mr. HOUGH. Not so far as impurities are concerned. The character and quality of the product is not inspected at all.

Mr. BARTLETT. As I understand it the Government keeps account of the amount of material that goes to the warehouses or storehouses, and then it estimates from that amount of material that a distiller is charged with having received that he must produce so much product.

Mr. HOUGH. It has nothing to do with the quality at all.

Mr. MANN. You mean that it must produce at least so much?

Mr. HOUGH. They survey the capacity of the distillery, then they have a statement of the material used. The capacity of the distillery, we will say, is 100 gallons a day, and if it produces 100 gallons then they must return 100 gallons a day, and if it produces 80 gallons they are never assessed for the deficiency; but if they produce less than 80 gallons they are invariably charged with a deficiency, and it depends upon what kind of a showing they can make to the Internal-Revenue Department whether they are excused or not.

Mr. ADAMSON. But if they set the measurement, they are assessed anyway?

Mr. HOUGH. Yes, sir; the proof gallon according to law is 50 per cent water and 50 per cent alcohol at a certain temperature and a certain specific gravity.

Mr. RICHARDSON. Do you contend that the object of the internal-revenue system was merely to get the revenue? Do you assume that under the rule of the Government to-day the inspection is any better than it was before the war, when it sold at 15 cents a gallon?

Mr. HOUGH. Probably before the war it was better, because it was then always subjected to processes of rectifying. At the time the tax was put on there was no bonded period as there is to-day. That has led to confusion in the minds of a great many people and has induced the thought that this bonded period was created for the purpose of producing a certain thing. That is not true according to the history of it, and it is an error into which so many people fall who do not look back into the manufacture of this product more than five or ten years. Naturally people will fall into error, because they think that the way things are being done to-day is the way that they have been done all the time.

Mr. BARTLETT. Is whisky that is bottled in bond any more likely to be straight whisky?

Mr. HOUGH. It is more likely to be straight whisky. It is called straight; in other words, it is the product of distillation, taken from the receiving cistern and put in barrels and not rectified.

Mr. RYAN. No evidence as to the purity.

Mr. HOUGH. Not in the sense in which we use the word "pure." Doctor Wiley and I have had a discussion as to that, and I have contended that it is not right to take the word "pure" and twist it into another meaning that the public don't understand, when there are other terms better qualified than the word "pure" to indicate the meaning.

Now, in the highly technical sense, not understood by the public, when it is pure it is the product as it comes from the second still into the receiving cistern, plus the water which is added at that time, because it is distilled above proof, and it always comes into bond at proof, and put into barrels, whether charred or uncharred. That is the product itself, whisky or high wines, with all of the purities or impurities. It may become a pure product; it may be a pure product at that time; but the mere fact that it comes straight does not prove that it is wholesome.

Mr. RYAN. Bottled in bond.

Mr. HOUGH. The bottling in bond, which is under the law of 1896, is when the distiller drawing this distillate, which in early days was called "high wine," from the receiving cistern puts it in the barrel. He had to keep it in that barrel until the tax was paid, but when the tax was paid another stamp was put on, which was called the "tax-paid stamp"—that is merely a receipt for the tax. In 1896, I think it was, the distillers who had been making an effort—not all of the distillers, but some—to wipe out the middleman and get their product on the market and in the hands of the consumer, it was then that the bond law was passed, so-called "bottling in bond." It is not bottled in bond in the strict sense of the term. It simply means that at the time the tax is paid on that article the privilege is given of adding enough water to reduce it to proof, which is 100, and

transferring it from the barrels to the bottles and putting the receipt for the tax over the neck of the bottle.

Now, you may be sure that when you get that kind of a bottle that you will get all of the product of that distillery alone, not affected by the addition of anything except what it will extract from the barrel, and you will know whether it is four, five, six, or eight years old. But you know absolutely nothing about whether it is fit to drink or unfit to drink; whether it contains a larger percentage of impurities or contains no impurities at all. There is nothing whatever told about it, and nothing was ever intended to be told.

I had something to do myself with extending the bonded period and the outage, because the present system dates from 1866 and 1868. In 1866 there were no stamps, and the tax had to be paid as soon as it was produced. The Government was not interested in bonded warehouses; it didn't care anything of what became of it, just so the tax was paid. It was their province to collect the revenue; so the distiller paid the tax and took it off and treated it in any way that he saw fit.

The two stamps that I referred to date from the law of 1868, July 13; and at that time the distiller had said that he could not pay the tax on the day it comes out, and that he would like to have time to pay it. The law says that he must give a bond to pay the tax on the amount which he produces, from the day it is taken from the receiving cistern and put in the warehouse. And the Government says, if you want us to wait a year you must build warehouses and put it in there, so that our people can see that you do not swindle the Government. That was the origin of the warehouse, not for the purpose of improving the whisky, but in order to enable the distiller to have time to sell his product, giving him days of grace.

Mr. RYAN. He pays it when he takes it out of the bond.

Mr. HOUGH. Any time within a year. When Mr. Carlisle was here he was interested in the welfare of the Kentucky distillers, and he, with the aid of Congress, extended from one year to three years the time. They said, "Well, now, we are holding it there and we are losing something." They were allowed for a loss of $7\frac{1}{2}$ gallons in three years. In other words, they said, "Well, now, we put in so much, but when we come to pay the tax it is not there, and we don't think the Government ought to require us to pay the tax on what is not there." And Congress said, "We will allow you to have the benefit of that and that outage." That was extended from three to four years. Then the bonded period was extended to eight years. Now, the extension of the bonded period and the creation of the bonded period was not done from the governmental standpoint for the benefit of the material, but to give the distiller a longer time to sell his product.

Mr. ESCH. Wouldn't the bonding of the liquor have a tendency to age the product; and has aging anything to do with the selling of the product?

Mr. HOUGH. If you take out of a receiving cistern and put the whisky in glass, you might keep it there for fifty or one hundred years and it is no better than the day you took it out. Consequently inasmuch as the processes of the rectifier are well known—that is, the processes to which he subjects these high wines, because that is what it was in those days—it originated with the idea of getting the effect

or action of charcoal on this distillate in the barrel, which is rectification to that extent, in fact, although it is not rectification in the eye of the internal-revenue law. And if whisky is kept in wood and subjected to certain conditions it is bound to meet the same improvement, and that is the origin of the idea of age. But mere age of itself means nothing if you don't know the conditions under which it has been kept during that length of time.

The CHAIRMAN. In what do those improvements consist?

Mr. HOUGH. The development of certain things other than what we call fusel oils, and in part the oxidization of a part of the fusel oils. Notwithstanding Doctor Wiley's opinion to the contrary, I think it is well demonstrated that such part of the fusel oil as will come in contact with the char will become oxidized up to a certain point, and therefore as to whether it will become purer depends entirely upon the amount of fusel oil. If there was a large amount, naturally it can not improve properly, but if there was only a small amount, and is subject to agitation and heat and the action of the charcoal, it will improve.

The CHAIRMAN. Does the improvement take place in the heads and tails only or upon the ethyl alcohol also?

Mr. HOUGH. That is a mooted question as to whether it will act upon the ethyl alcohol also. In 1891 or 1892 there was an investigation upon this subject before a Parliamentary commission in England. A great amount of testimony appeared, running through nearly two years, and the conclusions reached were that the ethyl alcohol, if kept a little while in wood, will also improve—that is, separate from these other things; but it does not require the retention in wood for such a length of time as is required for the improvement in those cases where there is a large amount of these higher alcohols.

The CHAIRMAN. There are changes which take place in time on the ethyl alcohol.

Mr. HOUGH. I would not think it is on the ethyl alcohol itself, but certain things which can not be separated from the ethyl alcohol.

The CHAIRMAN. If they can not be separated, then, for all practical purposes, they are a part of the ethyl alcohol, are they not?

Mr. HOUGH. Well, you might consider it that way, in one sense.

The CHAIRMAN. Does ethyl alcohol undergo any chemical change?

Mr. HOUGH. I understand not.

The CHAIRMAN. It is precisely the same?

Mr. HOUGH. Yes, sir; and ethyl alcohol produced from one source is precisely the same as ethyl alcohol produced from another source.

The CHAIRMAN. So that whatever chemical changes occur by the lapse of time are changes in what you call the heads and tails?

Mr. HOUGH. Well, not in the heads. I don't think anybody would let in the heads, though they may; I don't know. But it is in certain ethers which are plus the ethyl alcohol, and in certain parts of the ethyl alcohol, depending upon the amount which went in, the amount of char, and the amount of heat.

The CHAIRMAN. Is there a change through any chemical process in ethyl alcohol in the way of flavor or in the way of odor from time?

Mr. HOUGH. The things which the alcohol extracts from the wood have an effect upon the flavor and the odor of the spirits which are put in there.

The CHAIRMAN. But I am speaking now of pure ethyl alcohol. Suppose that you put that in wood, would there be any change in odor or flavor from the lapse of time?

Mr. HOUGH. Well, there would be some change, depending upon the amount of tannin or flavescin extracted from the wood.

The CHAIRMAN. Then there is no change in the ethyl alcohol—it remains the same one year after another?

Mr. HOUGH. That is as I understand it; it is the purest alcoholic liquid that you can get.

The CHAIRMAN. Then in liquors made by rectification from ethyl alcohol, nothing would be added to them of value by the lapse of time?

Mr. HOUGH. Practically not.

The CHAIRMAN. It would be the same whisky that it was after it was 15 minutes old, and there would be no improvement if it was kept ten or fifteen years, excepting as it might extract something from the wood?

Mr. HOUGH. Yes, sir; and that question suggests something that I did not wholly touch upon, which was the process to which the rectifier subjected the liquid prior to the time the internal-revenue laws were enacted. The tax was required to be paid upon the amount which was drawn from the receiving cistern and put in the barrel; and it was then sold to the rectifier and transported to his place of business, and was rectified by running it through another still and a series of charcoal tubes, in some instances, which it is claimed took as much of the impurities out as possible, and then it was flavored and colored as much as was needed. Now, that process caused a loss varying from 4 to 6 per cent in volume, and I am informed the Government rebated that.

In 1869, however, they decided that that opened the door to fraud, and they said:

If you will do on the distillery premises a part of the things which you have been doing on the rectifying premises, it may be done without paying the rectifier's tax, and the tax won't attach at all until after this 6 or 8 per cent has been lost.

That was the origin of the separation of a part of the process of producing whisky which was in vogue prior to 1860. And it was because of that fact that the United States courts held, in 1867, that it was the process of the rectifier putting these high wines into the vat—and the process was in those days well understood, better than it is to-day—which converted the wines into whisky.

Mr. RYAN. Take the case of the distiller bottling whisky in bond, distilling rye which goes to proof after three or four years; is that in all cases reduced to proof before it is bottled at the distillery?

Mr. HOUGH. Reduced to 100 by the addition of water.

Mr. ADAMSON. I want to ask you a practical question. I have seen heat applied to whisky in two ways, one by the combination with hot water and another by the direct application of fire. Is the rising temperature of that whisky, which escapes, the safe part or the damaging part?

Mr. HOUGH. That is a mooted question as to whether anything harmful occurs; but as I understand the process it is done for the purpose of coloring whisky, done by the distiller a little quicker—

Mr. ADAMSON. No; when you go to drink it, to make a hot-scotch, say. I have seen them take whisky and burn it.

Mr. HOUGH. That is getting rid of the volatile matter. The theory has been that that burned up the fusel oil. I have never made any test nor had any chemist make any test to decide that, because the only way you can prove it is by analyzing before and after burning it; and you don't usually have time to do that when you are going to drink it.

Mr. RICHARDSON. As I understand you, you claim that age does not add anything to whisky at all?

Mr. HOUGH. I did not say that. I say it may or may not, depending upon a number of things. The mere question of age—if you age it in glass it will never improve at all.

Mr. RICHARDSON. It will remain one hundred years just the same as when it was put in, is that it?

Mr. HOUGH. Just as noxious as when put in.

Mr. RICHARDSON. That really does not apply to other things in nature. It does not apply to man; it does not seem to apply to anything but whisky.

Mr. HOUGH. Well, I can not say how many things that applies to, but I think the consensus of opinion is positive on that point, that if it is put in glass and is not subjected to certain other things that there is no improvement.

The CHAIRMAN. Does pure ethyl alcohol and water in proportions constitute whisky?

Mr. HOUGH. It does; that is, with the proper flavor. That was the only original whisky. The term whisky has never been properly applied to all of the products of distillation, but it has been applied only to the rectified products—the purified or refined products. The straight distillate was high wine.

The CHAIRMAN. Then that is just as much whisky the moment after it is made as it is ten years after it is made?

Mr. HOUGH. Not a particle of doubt about that, and the Government brands it whisky.

The CHAIRMAN. And it is just as valuable, just as pure, at the age of 1 day as it is at the age of 10 years, except as it may draw something from the receptacle in which it is placed?

Mr. HOUGH. Excepting that and excepting that it may get rid of something which has been left in it.

The CHAIRMAN. How does it get rid of that something that may be left in it?

Mr. HOUGH. By the process of oxidization, evaporation, and aeration.

The CHAIRMAN. What is there in pure ethyl alcohol that it ought to get rid of?

Mr. HOUGH. Nothing in pure ethyl alcohol.

The CHAIRMAN. That is what I am speaking of.

Mr. HOUGH. I did not understand you to qualify that.

The CHAIRMAN. I mean ethyl alcohol as it is made by the elimination of these other ingredients or qualities by the use of the degree of heat that you have named.

Mr. HOUGH. That is, with pure ethyl alcohol, which is ethyl alcohol and nothing else, there is no advantage, as I understand it, in aging, because there is nothing to be gotten out.

Mr. MANN. You call that ethyl spirits?

Mr. HOUGH. The same thing—ethyl alcohol and ethyl spirits—the same.

Mr. MANN. You do not get pure ethyl alcohol by this middle distillation?

Mr. HOUGH. When I say ethyl alcohol I don't understand the chairman to exclude the water. I am talking about pure spirits containing water and ethyl alcohol.

The CHAIRMAN. All of these other ingredients of which you have spoken will be eliminated by the application of certain degrees of heat that you have mentioned?

Mr. HOUGH. Do you mean what I have referred to as impurities?

The CHAIRMAN. Yes, sir; heads and tails.

Mr. HOUGH. All of them may, if subjected to proper influences, providing there is not too much to separate—I won't say any quantity—can be gotten rid of. Doctor Wiley's opinion to-day is that the fusel oil does not decrease at all. If that is true, I think I know where he got that opinion. If there is a small amount of fusel oil with the ethyl alcohol at the time it is put in the barrel, and the char of the barrel is sufficient, and it is subjected to proper conditions, the advantages of aeration—distillers roll their barrels when they are in the distillery, and that is for the purpose of bringing these fusel oils in contact with the char so that it can have the proper effect upon it, whatever that effect may be, and which is supposed to be beneficial.

The CHAIRMAN. What becomes of these constituents that you call "impurities?" Are they lost or saved when heat is applied?

Mr. HOUGH. What are lost are converted into ethers. If there is no conversion, if there is no loss, then they still remain in the spirits, and if they still remain in the spirit they are impurities.

The CHAIRMAN. They will not remain in the spirit if the proper degree of heat is applied.

Mr. HOUGH. That is the popular impression.

The CHAIRMAN. Then, if they are evaporated or converted into vapor or something of that kind by this process of distillation or rectification, is that lost, or is it saved?

Mr. HOUGH. What is converted into ether is not wholly lost, but a part is lost. I have explained to the committee that in keeping, we will say, for three years—

Mr. HEPBURN. No; I am speaking now of the simple process of applying heat. I think you said it was something—what was the per cent, 20 per cent of those impurities, heads and tails?

Mr. HOUGH. I did not refer to any per cent; I spoke of the volume.

The CHAIRMAN. What is the percentage of that in bulk?

Mr. HOUGH. The Commissioner of Internal Revenue issued a statement in which he said that the average percentage of fusel oil in whisky was 0.25 of 1 per cent. When you take that out all you have left is ethyl alcohol and water, but—

The CHAIRMAN. When you take the high wines that you have spoken of and apply the proper degree of heat, what is the percentage of ethyl alcohol that remains?

Mr. HOUGH. The average in the entire volume of 40 gallons is $7\frac{1}{2}$ gallons of everything in three years—

The CHAIRMAN. But I am asking with reference to this process of applying heat. Is there any percentage of diminution of bulk, of quantity?

Mr. HOUGH. Do you mean only the fusel oil?

The CHAIRMAN. No, sir; of what is left after you have applied heat, the necessary heat, to expel the heads and tails.

Mr. HOUGH. Now, the heat is applied—let me make that clear; I did not refer to heat in the barrel, but any steam heat in the warehouse—so as to make that practically a hothouse all the year round, or hot weather all the year round. It is that hot weather, the oxidation of these higher alcohols—

The CHAIRMAN. I misunderstood what you said.

Mr. KENNEDY. The chairman is evidently under the impression that you stated that the fusel oil could be taken out by application of heat—by a quicker process.

Mr. HOUGH. No; I have not said that.

Mr. MANN. Which evaporates first, ethyl alcohol or fusel oil, upon the application of heat?

Mr. HOUGH. Do you mean the application of heat to the outside or the inside of the barrel?

Mr. MANN. To the substance, whatever it is.

Mr. GAINES. In the process of distillation.

Mr. HOUGH. I do not understand that they subject it to heat in the process of distillation. The only heat I have in mind is the heat of the warehouse in which the barrel stays, not the heat of the liquid itself.

Mr. MANN. In the heating of alcohol, which will evaporate first, the fusel oil or the ethyl alcohol?

Mr. HOUGH. There are certain things which occur that are not all perfectly understood. For instance, when water is put in one saucer and alcohol in another saucer the alcohol is supposed to be more volatile and evaporate faster than the water; yet we know that when the two are put together in the barrel the water in these hot warehouses evaporates, just the reverse of the ordinary rule, faster than the alcohol, and that is represented by the fact that the proof of the whisky is 110—

Mr. MANN. That is not from the effect of heat. Suppose you boil alcohol—subject it to heat—which goes up into the air first, which of the alcohols?

Mr. HOUGH. Ethyl alcohol goes up before water.

Mr. MANN. Before the fusel oil? Does it distill before or after the fusel oil?

Mr. HOUGH. It distills before the fusel oil, and the fusel oil is the last thing distilled. That is why it is called the tails, with the bad taste and the bad odor.

The CHAIRMAN. I understood you to say that some one of these elements or ingredients composing the tails was eliminated by the application of two hundred and seventy-odd degrees of heat.

Mr. HOUGH. Oh, from the wash in the still; that is true. The first thing that goes over the neck of the still is what we call the "heads," the bad heads. The reason of that is that the boiling point is lower than anything else in there, and therefore it goes into steam first. The next thing is the ethyl alcohol, which has a boiling point of 172°. Then the next thing is the water, which has a boiling point of 212°, and the next thing are these various high alcohols, with a boiling point higher than water or ethyl alcohol.

Mr. MANN. Do you refer to the boiling point? You mean that it goes up in the form of vapor?

Mr. HOUGH. In the form of steam.

The CHAIRMAN. All these are condensed again during their passage through the worm, are they not?

Mr. HOUGH. Yes, sir.

The CHAIRMAN. And so they are all again found in the high wine?

Mr. HOUGH. Not all of them. It depends upon the care exercised by the distiller in stopping the distillation—cutting it off—when the temperature rises above the boiling point of the ethyl alcohol and certain other—

Mr. RYAN. Would you consider it fair to assume that barreled whisky placed in bond by the distiller contains nothing but ethyl alcohol and water?

Mr. HOUGH. It is a violent assumption. I don't know anything about it.

Mr. MANN. May I ask you one further question? What is outage?

Mr. HOUGH. Outage is the amount which the barrel has lost between the time any volume—

Mr. MANN. How does it lose it?

Mr. HOUGH. Goes out through the pores of the wood.

Mr. MANN. Evaporates?

Mr. HOUGH. Evaporates in an invisible way.

Mr. MANN. Disappears. What disappears?

Mr. HOUGH. The water disappears. The ethyl alcohol disappears.

Mr. MANN. Anything else?

Mr. HOUGH. It is supposed that a part of the higher alcohol may disappear if the conditions—

Mr. MANN. What in fact disappears? Somebody must have analyzed it to know.

Mr. HOUGH. Ethyl alcohol and water disappear.

Mr. MANN. So that at the end of three years the substance is not as good for drinking purposes as it was at the beginning?

Mr. HOUGH. Yes; it is supposed to be better, if the conditions under which it has been kept were the proper conditions—those to which it ought to be subjected.

Mr. MANN. Supposing you put the alcohol in a barrel; what is it under normal conditions that disappears, the good or the bad alcohol?

Mr. HOUGH. Do you mean when it contains ethyl alcohol and fusel oil also?

Mr. MANN. It always contains some fusel oil.

Mr. HOUGH. Only a trace in some instances; but the thing which chiefly disappears is water. The next thing which disappears in the largest quantity is ethyl alcohol, and there may be diminution in the fusel oil, which we will say is covered by fifty-one one-hundredths of 1 per cent of the whole that went in, providing the conditions were propitious for conversion.

Mr. MANN. The water cuts no figure in the case at all. That is easily replaced; there is no tax on it.

Mr. HOUGH. The tax is based upon 50 per cent water and 50 per cent ethyl alcohol.

Mr. MANN. You can put what water in that you want to up to the proper limit. Losing of water does not affect the alcohol.

Mr. HOUGH. For instance we will take 40 gallons which has been there approximately three years. Now, in volume it has lost approximately $7\frac{1}{2}$ gallons. Of that $7\frac{1}{2}$ gallons, say, 4 gallons are water and $3\frac{1}{2}$ gallons are ethyl alcohol, less an infinitesimal part of high alcohol, which we call fusel oil.

Mr. MANN. If the whisky is improved by it, then it must have lost a larger percentage of fusel oil than ethyl alcohol?

Mr. HOUGH. In percentage I guess that would be true, but not in volume.

Mr. MANN. Are those the facts? Does the fusel oil and the other deleterious alcohols disappear in percentage more rapidly than the ethyl alcohol by age?

Mr. HOUGH. Now, I am not sure that I catch just your exact question, and therefore I want to be particular about answering. As to percentages, I will say if the conditions are propitious for the oxidation a larger percentage of fusel oil will disappear, although it is not the largest in volume. The largest in volume of course is water, and the next largest is ethyl alcohol; but the water and the ethyl alcohol may disappear without any disappearance of fusel oil at all, so that there may be no improvement so far as the disappearance of fusel oil is concerned.

The CHAIRMAN. We will have to suspend now for the present.

Adjourned at 11.55 a. m.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Tuesday morning, February 20, 1906.

PURE FOOD.

Committee called to order at 10.10 a. m.

STATEMENT OF WARWICK M. HOUGH—Continued.

The CHAIRMAN. Mr. Hough, we haven't very much time; we have a great many witnesses to hear, and we will have to ask you to be as brief as possible.

Mr. HOUGH. I appreciate that, Mr. Chairman, and I will condense what I have to say.

The CHAIRMAN. I think you stated yesterday that you wanted ten minutes.

Mr. HOUGH. I can condense it so as to get through in ten minutes, I think.

The CHAIRMAN. We will limit you to fifteen minutes.

Mr. HOUGH. I suppose you will not include in that fifteen minutes the time that might be consumed in asking questions.

I stated yesterday that in substance the term "whisky" was never applied properly at any time to all the products of fermentation which were separated by what is known as the distilling process; that there is no constant of ingredients in the product which comes out of the still or receiving cistern, and the term "whisky" was used originally and exclusively to apply to that product which had been subjected to the rectifying process after the distilling process,

which rectifying process was sometimes called the "compounding process," which consisted of freeing its distillates, the proper name of which was high wines, as near as possible from the impurities, and then adding the coloring and flavor in different ways.

In England it was largely the custom to put this distillate in an empty sherry cask or an empty rum cask and work it through the casks, which had certain things in the staves which the alcohol extracted from them in order to get the flavor, which might be considered its natural flavor. They do not char barrels in England, and the barrel-charring process was an invention of the distiller of this country after the sixties, whereby a straight distillate might be really purified and refined in fact, while it might not be regarded as rectification in the eye of the internal-revenue law, and it was for the purpose of escaping certain taxes and restrictions. Therefore the mere fact that whisky is what we call a straight whisky proves absolutely nothing as to its wholesomeness or purity; and the term "whisky" was never, as I say, originally applied to the straight distillate until comparatively recent times.

Now, whisky is not a natural product, as has sometimes been asserted. It is the result of the inventive genius of man, as much so as the clothes that we wear. It is a manufactured product. It was not brewed by the gods on Mount Olympus, and therefore man, in the manufacture of this product from time to time, has availed himself of chemistry and patented machinery.

Now, the other product has sometimes been referred to as synthetic whisky, which is not a correct term to apply to that whisky, because it was the original product which was entitled to the unlimited term "whisky."

The bill—and that is the point now to which I wish to call your attention—is so worded that it does not by any of its provisions apply to what I have designated as high wines, or straight whiskies, because in line 15, on page 6, which is the only paragraph that could be construed as applying to it, as I understand, there is the word "added;" "if it contain any added poisonous ingredients."

Now, I do not think any distiller or advocate of straight whisky wants to admit that his straight whisky does contain a poisonous ingredient, and the word "poisonous" must be construed with reference to the article to which it is applied; so while ethyl alcohol is toxic in its effect, that word "poisonous," as applied to whiskies, the main body of which is ethyl alcohol and water, it would not be construed as excluding ethyl alcohol, as that would wipe out all whiskies, but only those things mixed with ethyl alcohol which have been regarded by all the authorities in this country and in Europe as impurities in whisky. The word "added," therefore, should be stricken out of the bill, because this committee must recognize that if an article, which is a manufactured article, contains a poisonous or deleterious ingredient it is just as poisonous and deleterious if it is there because it has not been properly extracted by the process of manufacture as if it is there because it has been added.

The CHAIRMAN. What is the poisonous ingredient in the whisky that you refer to that causes you to object to that section?

Mr. HOUGH. There is none in the whisky that I represent or want to represent.

The CHAIRMAN. How does that affect your industry that you represent?

Mr. HOUGH. In this way: If the bill is so drawn as that it requires an inspection of the blended or compounded whisky, which was the original whisky, and requires absolutely no inspection or degree of purity or supervision of what we call the straight whisky, the bill is not fair as to all products, because it does not apply—

Mr. RYAN. In other words, that which is bottled in bond?

Mr. HOUGH. Yes. In other words, there is nothing in the bill which requires any degree of purity in the bottled-in-bond class or any so-called "straight" whisky; nothing to determine whether it has been properly manufactured, so as to reduce those impurities to the possible minimum or to make it a wholesome article.

Now, the position I have taken is that a straight whisky may be a perfectly pure whisky or a perfectly impure whisky, and I use the word "pure" in the sense in which it is understood by the public. The bill ought to be made to apply to all whiskies, if it is a bill which is intended to apply to all food products, because the man who might take a drink of bottled-in-bond whisky on the theory that there was a guaranty of purity because of the fact that the Government's receipt for the tax is on the bottle would be misled to his injury, and that is not the purpose or ought not to be the purpose of a pure-food bill.

Mr. MANN. This paragraph which you read does not apply to any kind of whisky unless it has a poisonous ingredient added?

Mr. HOUGH. I have tried to make it clear—

Mr. MANN. How, then, does it affect blended whisky, unless you had a poisonous ingredient?

Mr. HOUGH. It does not.

Mr. MANN. Then there is no difference.

Mr. HOUGH. My point is that you should let whisky be judged by what it is.

Mr. MANN. Some people, you know, believe that all whisky is poisonous. Do you want to have an order prohibiting the use of any kind of whisky? Do you want us to leave that to the courts to construe? It might be construed one way in Maine and another way in Texas.

Mr. BARTLETT. Your purpose is, that under this bill the straight whisky which contained the poisonous article would escape this definition, whereas it might contain just as poisonous an article as the blended whisky.

Mr. HOUGH. It would escape absolutely the provisions of the bill, because no part of the bill would apply to that product. We say it is only fair to one article which is made subject to the provisions of the bill that its provisions should be made to apply to all articles, so that when we give the advantage of not being subjected to inspection to one article, while the other article is subjected to inspection, we think that is not fair. There is no standard that can be adopted which is applicable to all whisky that can not be met just as well by one as by the other. The only thing that the blended whisky people ask is that the provisions of the pure-food bill shall not be such as apply only to them and not to the others. It should apply to all.

The second amendment to which I wish to call your attention is the

striking out of the words included in lines 9 and 10, on page 7. It says:

First. In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names, and not included in definition fourth of this section. Second. In the case of articles labeled, branded, or tagged so as to plainly indicate that they are mixtures, compounds, combinations, imitations, or blends: *Provided*, that the same shall be labeled, branded, or tagged so as to show the character and constituents thereof.

Now, we say that that last proviso should be stricken out, because if a whisky contains no ingredients, added or otherwise, which are poisonous or deleterious to health, the only thing which the public are entitled to know is that it is a mixture or compound or blend, to differentiate it from the so-called "straight whisky;" but they are not entitled to know the secrets of the blender which go exclusively to the question of giving flavor; and this provision would require perfectly his formula to be stated.

I have stated, and Muspratt in his work on chemistry states, that all whiskies, whether straight or blended, which are equally free from impurities are identical in substance excepting in the matter of flavor; and there are hundreds of different flavors for whisky. What a man adds, therefore, may be for the purpose of differentiating or getting a special flavor which is pleasant to the palate of the consumer. What the consumer is drinking is chiefly ethyl alcohol and water, plus a flavor. In a blended whisky, as in blended wines, there are efforts to give varying flavors to suit the public taste, and the blender should not be required to state upon the package how he has derived his flavor. If the committee, for instance, say that the analyses of all whiskies should be stated on every bottle that is entirely satisfactory to the blender; he is perfectly willing to meet that kind of a provision; but he says it is unfair to put a provision in a bill aimed only at him and let the other class be absolutely free from inspection.

Mr. TOWNSEND. That does not require you to state the proportions of the ingredients.

Mr. HOUGH. The proportions are not necessary to be stated in order to disclose how the particular flavor is obtained.

The CHAIRMAN. Rectified whisky is made by using the ethyl spirits and then adding to that a portion of the aged whisky, is it not?

Mr. HOUGH. Very frequently.

The CHAIRMAN. And the flavor comes from the aged whisky?

Mr. HOUGH. Not exclusively; there are other matters added. Just as the flavoring of what is called the aged whisky is produced not exclusively by the things which are in the whisky, but things which are extraneous are added as a result of the preparation to which the barrel is subjected into which the spirits are put; so that I say the flavor and color which is in whisky, whether straight or blended, does not come from itself, but always from an added matter—matter which is added in one way or another.

The CHAIRMAN. What is added to straight whisky?

Mr. HOUGH. Caramel and tannic acid and flavescin, and other extracted matter from the wood; certain kinds of sugar; all of which have a direct bearing upon the flavor of a whisky. You may take that very same product and instead of putting it into a charred barrel put it in an uncharred barrel and its flavor will be different. You take that very same product and instead of putting it in a

charred barrel put it in an empty wine cask and the flavor will again be different; and instead of putting it in an empty wine cask, should you put it in an empty rum cask, the flavor will again be different. The flavoring of all whisky for the last five hundred years has been produced in these various ways.

Mr. BARTLETT. Suppose it is put in glass?

Mr. HOUGH. It would never change its flavor, and never be fit to drink. That is why the product as drawn from the receiving cistern is properly called high wines, or spirit of wines, or wines. That was why the United States courts said, in 1867, that it was the process to which these wines were subjected after distillation which made whisky; and what was that process? As I stated yesterday, it was the process of excluding or taking out the impurities so far as possible, and then adding coloring and flavoring; and I should like to put before the committee some quotations on that question.

The CHAIRMAN. Please do not take up the time for that; you can give them to the stenographer.

Mr. HOUGH. I wish to read the following, from the United States Dispensatory, on the subject of whisky:

There are volatile principles naturally existing in the grains which accompany the liquor in all its changes and give their characteristic flavor to the resulting spirit. These can scarcely be considered as impurities; but there are others produced during the process of fermentation which seriously serve to contaminate the product. Among these is fusel oil * * * from which it is very desirable that the spirit should be freed as soon as possible.

In an address before the Pure Food Congress, held on the World's Fair grounds in St. Louis in 1904, Dr. H. W. Wiley made the following statement:

The term "fusel oil" means a collection of these higher alcohols which are produced in the fermentation of the mash. These alcohols, however, pass over with the water in the still. Some of them have higher boiling points, but they are carried over mechanically, so that they all appear in greater or less quantities in the product. Now, in order that this product be good for consumption, it is necessary that this fusel oil be removed.

At a hearing before the Senate Committee on Manufactures, in February, 1904, Dr. W. H. Wiley made the following statement:

When whisky is bottled in bond there is no guaranty in the Government's stamp that it is wholesome. It may be, as Mr. Hough says, a very unwholesome article. The Government does not guarantee the purity.

In the case of United States against Eight Barrels of Whisky (25 Fed. Cases, 982) a United States court, in 1867, stated as follows:

Pouring the wines into the vat was the first act toward rectification, which was followed by the rectifying process, thereby changing the wines into whisky.

The following quotation is from the report of the British Parliamentary commission on whisky, in 1892:

Whisky is certainly a spirit consisting of alcohol and water, with a small quantity of by-products coming from malt or grain, which give to it a peculiar taste and aroma. It may be diluted with a certain quantity of water without ceasing to be whisky, and it may be diluted with spirits containing little by-products, to suit the pocket and palate of customers, and it still goes by the popular name "whisky." Your committee are unable to restrict the use of the name as long as the spirits added are pure and contain no noxious ingredients.

From Nettleton on distillation I read the following:

In a rough way a portion of the fusel impurities can be removed even from pot-still distillates—such as second faints—by adopting the diluting and decant-

ing process carried out with the same faints at patent still works, if time be allowed for separation and the vessel be deep rather than broad.

From Morewood's History of Inebriating Drinks, a philosophical and scientific treatise, which was first published in Dublin in 1821, I read the following extracts:

The Latin epithet *aqua vitæ*, the Irish term *usquebaugh*, and the modern word *whisky* are in point of fact synonymous.

At that time (Henry VIII) the Irish were great proficient in compounding liquors, but their *usquebaugh* was their famous drink and in great demand.

With respect to the nature or peculiarity of the spirits used in those times it is not now easy to determine; but *usquebaugh* seems to have been a general name for all compounded spirits, and plain *whisky*, as we have it at present, was not the common beverage, it being customary to infuse the liquor with some savory or tasty ingredient.

"*Usquebaugh*" should be written "*iskebaghah*" or "*isqueboah*," the former implying water of life, and the latter living water. As *isque*, or *iske*, means water, it must appear evident that the word "*whisky*" is only a slight alteration in the pronunciation of this Irish term.

The word "*whisky*," therefore, is of very comprehensive import and fully expressive of this sense-subduing beverage.

From the North American Review, July, 1888, page 106, I read the following article by Dr. Willard H. Morse, entitled "A scientific specific for intemperance:"

In the light of the recent results of pathological research there is determined to be a modification of the sweeping and oft-heard statement that the excessive use of alcohol beverages conduces to procure injury to the health. In point of fact the statement is not true of all alcoholic liquors. If they are charged with fusel oil, their use tends to cause disease of the cerebral convolutions, which disease may eventuate in insanity or may be but one of the symptoms of some affection of the special senses. If, however, the beverages are free of the obnoxious oil, there is not produced any such effect. In other words, alcoholic liquors made impure by fusel oil (amylic alcohol) poison the brain and induce "amylicism;" but such liquors containing pure ethylic alcohol to exclusion of that which is amylic merely excite the cerebral functions, inducing the condition known as "ethylicism."

This is proved both directly and indirectly. If two puppies are fed, the one on the whisky of the saloons and the other on the purest product of distillation, the autopsy of the former will show a diseased brain, while the brain of the latter will be found normal. Again, a century ago men drank larger quantities of rum than they can now and found no harm, all because the old-fashioned liquor had none of the modern deleterious character.

In view of these facts and of the human inclination toward indulgence in alcoholic drinks it remains for social science to notably contribute to the cause of temperance by making provision against amylicism by means of the media of the condition of ethylicism. The time demands, not the prohibition of the manufacture, sale, and use of all alcoholic liquors, but the substitution of the ethylic for the amylic alcohol of exhilarant for toxic action of liquors that will not inebriate for those that produce alcoholic drunkenness.

The ills of intemperance can be entirely avoided by abstinence from liquors vile with fusel oil and by the use, either moderate or excessive, of those that are free from it. If men will drink alcoholic beverages, let them be those which are pure and, by reason of their purity, will not be a factor in the ruin of body and soul. Let the cupidty of the manufacturer and dealer be checked by a law which shall make it a crime to produce, sell, or use the poisonous liquors, and let encouragement be given to those who shall undertake to provide pure ethylic alcoholic beverages, harmless to the brain, medicinal in value, deficient in toxicity. Such prohibition, married with such encouragement, will appoint the only scientific specific for the evil of intemperance.

Mr. RICHARDSON. I want to be informed. The gentleman from Georgia asked you a question a while ago that I would like to get further information about. You stated to the committee something

in relation to putting whisky in glass. We drink it out of glass bottles frequently. Did you say that it is unfit to drink?

Mr. HOUGH. If it is put into glass at the time it is drawn from the receiving cistern, put into bottles at that time, it does not improve. If there is any improvement or merit in a whisky that is in a bottle it comes by virtue of something that was done to it before it was put in the bottle. If nothing was done to it, then it has not been improved.

Mr. RICHARDSON. Then the putting of the whisky into the bottle relates to a certain period or time that it goes in?

Mr. HOUGH. It may and it may not.

Mr. BARTLETT. We put it in jugs in our country.

Mr. RICHARDSON. When does it have to be put into the bottle to become worthless?

Mr. HOUGH. At the time it is drawn from the receiving cistern at the distillery.

Mr. RICHARDSON. Is that ever done?

Mr. HOUGH. No, it is not done. That fact is only referred to as indicating that the product at the time it is drawn from the receiving cistern is really high wines, and as indicating that it must be subjected to some other process in order to be entitled to be called whisky.

Now, I want to say that I did not appear before this committee two years ago because at that time certain amendments were agreed upon between Doctor Wiley and myself, and I supposed that when Doctor Wiley agreed upon them that that would settle it, and I did not appear before the committee. When the bill was reported out without any such amendments I naturally was surprised, and I appeared before the Senate committee some time later.

Doctor Wiley did not agree to the amendment striking out the word "added," because he thought that would exclude the sale of all whisky. Well, I said if the blenders are not afraid, and the clients that I represent, who represent more than half of the entire business, are not afraid of the effect of striking out the word "added," why should Doctor Wiley or any other person interested be afraid of it. Does not that give the strongest argument in favor of the necessity for striking that out? Doctor Wiley, however, did agree that the striking out of the words in lines 9 and 10, which requires practically a statement of the formula and ingredients, was a proper modification, and on that point he said to the committee of manufactures:

That is the reason why I have said to Mr. Hough and to Mr. Thomas that I do not see that the provisions of the bill in its great purpose of securing immunity from fraud and immunity from the addition of deleterious substances would be injured in any way by striking out these lines.

Whether Doctor Wiley has changed his opinion to-day with reference to that, as he changed his opinion in the last two years with reference to the merits of fusel oil, I don't know; but that was the position which he took then, and if that is the position which he took then there seems to be no reason why that should not be the proper position to take to-day. It would, gentlemen, be the fair position to take to-day with reference to this entire product without discriminating between one or the other, if you want to make the provisions of the bill apply equally to all.

I am very much obliged for the attention of the committee.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
February 20, 1906.

The committee reconvened at 2 o'clock p. m., Hon. W. P. Hepburn (chairman), in the chair.

STATEMENT OF DR. ROBERT C. ECCLES.

Doctor ECCLES was sworn by the chairman.

The CHAIRMAN. Where do you reside?

Doctor ECCLES. Brooklyn, N. Y.

The CHAIRMAN. What is your profession?

Doctor ECCLES. Physician.

The CHAIRMAN. Whom do you appear for here?

Doctor ECCLES. The National Food Manufacturers' Association.

The CHAIRMAN. What connection have you with them?

Doctor ECCLES. I have been invited by them to present certain features of the case.

The CHAIRMAN. Of this association?

Doctor ECCLES. Yes, sir; of this association.

The CHAIRMAN. Who constitute this association?

Doctor ECCLES. Food manufacturers to the extent, I believe—to the extent of some three or four hundred.

The CHAIRMAN. Where are they engaged in business?

Doctor ECCLES. Throughout the United States.

The CHAIRMAN. What business?

Doctor ECCLES. Different manufactories of foods.

The CHAIRMAN. Of foods?

Doctor ECCLES. Yes, sir; of food products.

The CHAIRMAN. Food products. What foods?

Doctor ECCLES. Canned goods and goods of various kinds.

The CHAIRMAN. Are any of them manufacturers of preservatives?

Doctor ECCLES. Not that I know of.

The CHAIRMAN. Not that you know of?

Doctor ECCLES. No, sir; not that I know of.

The CHAIRMAN. Name some of the firms.

Doctor ECCLES. That I could not do.

The CHAIRMAN. You could not?

Doctor ECCLES. No, sir; not personally.

The CHAIRMAN. Who are the officers of this association?

Doctor ECCLES. Mr. Yerington and Mr. Lannen.

The CHAIRMAN. Who is Mr. Yerington?

Doctor ECCLES. The president of the association.

The CHAIRMAN. Is he a food manufacturer?

Doctor ECCLES. No, sir; that I can not say.

The CHAIRMAN. You know that he is not, do you not?

Doctor ECCLES. No, sir.

The CHAIRMAN. Who is Mr. Lannen?

Doctor ECCLES. He is of Chicago.

The CHAIRMAN. Is he a food manufacturer?

Doctor ECCLES. I think not.

The CHAIRMAN. What is his profession?

Doctor ECCLES. I believe he is a lawyer.

The CHAIRMAN. Who are the other officers of this association?

Doctor ECCLES. That I can not tell.

The CHAIRMAN. Do you know any of them who are engaged in the manufacture of foods?

Doctor ECCLES. I have been introduced to a number that purported to be.

The CHAIRMAN. Beyond the officers of the association?

Doctor ECCLES. I will not say positively. I presume that the officers of the association know.

The CHAIRMAN. You were employed by them—

Doctor ECCLES. No, sir; I was simply invited by them.

The CHAIRMAN. Are you a chemist?

Doctor ECCLES. I am.

The CHAIRMAN. Is that your profession?

Doctor ECCLES. No, sir. My profession is that of a physician.

The CHAIRMAN. Where did you acquire your knowledge of chemistry?

Doctor ECCLES. Well, it would be a long story for me to tell you. I began as a boy my study of chemistry.

The CHAIRMAN. What institution have you been graduated from?

Doctor ECCLES. I am a graduate from the Long Island College, of Brooklyn, N. Y.

The CHAIRMAN. Long Island College?

Doctor ECCLES. Yes, sir.

The CHAIRMAN. Is that especially an institution devoted to the teaching of chemistry?

Doctor ECCLES. It does teach chemistry. It is devoted to the teaching of medicine.

The CHAIRMAN. And chemistry is a part—

Doctor ECCLES. A part of that; yes, sir.

The CHAIRMAN. Then your instruction is that of a medical physician?

Doctor ECCLES. No, sir; my instruction is more than that of an ordinary physician. I served ten years as the chairman of the committee on the United States Pharmacopœia, having charge of all the strong poisonous substances, and new remedies and articles of that kind. I served ten years on the United States Pharmacopœia; having charge, as chairman, of that part of the pharmacopœia, and all in the United States Pharmacopœia dealing upon that—the one that has just expired—was written by me; my particular personal work.

The CHAIRMAN. You are not under employment?

Doctor ECCLES. No, sir; I am not under employment.

The CHAIRMAN. Where do you practice?

Doctor ECCLES. In Brooklyn, N. Y.

The CHAIRMAN. Are you engaged now in the practice of medicine?

Doctor ECCLES. Yes, sir.

The CHAIRMAN. What particular points do you propose to discuss; the use of preservatives in foods?

Doctor ECCLES. That is the particular point.

The CHAIRMAN. Will you confine yourself to that, if you please, Doctor?

Doctor ECCLES. If the chairman would permit, I would like also to add in connection with that the reference to the Pharmacopœia, for I am particularly acquainted with that, and reference is made to the Pharmacopœia in the bill, which I am personally concerned with, and I am interested in putting you gentlemen straight as to the facts on that.

The CHAIRMAN. All right, sir. You will remember that we do not want to be discourteous, but our time is limited, and there are many here to be heard, and we want to expedite matters.

Doctor ECCLES. I understand that. In appearing before you, gentlemen, it is not because I am opposed to any effort toward a pure-food bill. My heart has been for many years with the pure-food effort. As Doctor Wiley knows, ten years ago I served as vice-president of the pure-food congress in this city, and my work has been toward the pushing forward of just such bills as this. But my particular training has carried me into what I believe to be the discovery of facts that militate against the public health in certain features of this bill, and it is this particularly that I wish to dwell upon. As far as the bill itself, as a whole, is concerned, I will state that I feel grieved, pained, at having to occupy the position, or appearing to occupy the position, of opposition to pure food; although I can not help it, possessing what I believe to be knowledge that militates against this bill. The excellent features of the Hepburn bill I agree with thoroughly. I had marked a number of notes here to refer to a number of points in the bill.

The CHAIRMAN. We would rather you would criticise the bill, if you please.

Doctor ECCLES. The copy that I have of this bill is of December 6, 1905, and I understand there have been some changes for clerical errors, so that if I mistake the contents of the bill it is because the wrong bill has been put into my possession.

The CHAIRMAN. That is the bill.

Doctor ECCLES. On page 2, in lines 21 and 22, my chief objection to the bill, at the start, will be to this language:

Any person who shall ship or deliver for shipment from any State or Territory or the District of Columbia to any other State or Territory, or the District of Columbia, or to a foreign country—

That he shall be the responsible party, and he shall be the one who shall be punished.

Mr. Herbert Spencer, whose authority as a thinker the world has acknowledged, has declared that any law that violates the principles of human justice is itself an injustice and a crime. If, therefore, the law is unjust, it is criminal, and the gentlemen who are endeavoring to push such a law are pushing a crime. The gentlemen who ship these goods, not knowing the character of the goods that they are shipping, having no possible means of knowing what is the character of these goods that they propose to have shipped, are made responsible for things that they can not be morally responsible for. They can not help themselves. They would have to stop all business of shipping food absolutely until they were sure that that food agreed with your law. To punish them before they know the nature of the food is to commit an injustice, is to make the law itself criminal rather than the man.

Turn, next, to page 3, lines 14, 15, and 16, where this language occurs:

That no article shall be deemed misbranded or adulterated within the provisions of this act when intended for export to any foreign country.

That we should ship adulterated, unwholesome, poisonous goods to foreign countries simply because the laws of this country allow them to be shipped does not seem to agree with the dignity of a great nation like this.

The CHAIRMAN. This branch of the discussion is academic. We would rather you would get to the professional part of the bill.

Doctor ECCLES. Very well, sir.

The CHAIRMAN. We will have to look after the moral part of it ourselves.

Doctor ECCLES. On page 5, under the heading "Adulterations," beginning on line 14 of that page, is the following:

First. If, when a drug is sold under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality, or purity, as determined by the test laid down in the United States Pharmacopœia official at the time of the investigation.

I object to this clause on two grounds. First, if you include it, it closes up every drug store in the United States. There is not a druggist in the United States who can obey this law, for the reason that more than three-quarters of all the druggist sells does not agree with the Pharmacopœia. The Pharmacopœia is a standard for the drugs that physicians shall prescribe, and only applies to that class of drugs and no other. It raises the standard so that if you gentlemen wanted to buy a drug—for instance, muriate of ammonia to use in your battery—the druggist would not be allowed to sell it, and the shipper would not be allowed to ship it for use in batteries, for the simple reason that it would not agree with the United States Pharmacopœia. If they made it agree with the United States Pharmacopœia it would cost dollars where it now costs cents.

Mr. TOWNSEND. Can you tell me what the United States Pharmacopœia is?

Doctor ECCLES. It is a volume that is produced every ten years, giving the standards of drugs and medicines. It is written by a number of gentlemen who are elected by a convention which meets here in Washington every ten years.

Mr. TOWNSEND. Who sends them?

Doctor ECCLES. All the medical and pharmaceutical colleges; and the Government of the United States sends officers, and they meet every ten years and pick out the gentlemen who shall do the responsible work of producing the Pharmacopœia.

Mr. TOWNSEND. All right.

The CHAIRMAN. How many are there on this committee?

Doctor ECCLES. There are usually 25.

The CHAIRMAN. Usually they are eminent men in the profession?

Doctor ECCLES. Yes, sir; they are eminent men in the profession.

The CHAIRMAN. They are nominated, and their office is to fix standards of purity?

Doctor ECCLES. For purity of drugs used only by doctors of medi-

cine and not for other drugs. And three-fourths of the business in drugs in the United States is in drugs that do not come up to the standard established by the Pharmacopœia. Therefore you are prohibited from selling those drugs.

Mr. ESCH. You mean that do not come up to the standard or are not covered by the Pharmacopœia?

Doctor ECCLES. That do not come up to the standard. These bear the same names—as, for instance, sulphate of copper or muriate of ammonia. Take those moth balls that are sold for 5 cents a pound; they would cost you 5 cents a grain.

Mr. TOWNSEND. Does that refer simply to the drugs that are recognized by the Pharmacopœia?

Doctor ECCLES. The trouble is that the Pharmacopœia uses the names of the medicinal drugs as well as the drugs that are used commercially.

The CHAIRMAN. The doctor sends a prescription to the druggist, for instance—

Doctor ECCLES. And the druggist knows that he means the Pharmacopœial goods and puts them in.

The CHAIRMAN. That is, the druggist has two grades—

Doctor ECCLES. He has a number of grades, but there are two special grades—one the commercial and the other the pure—that the doctors use.

The CHAIRMAN. Yes. Well, does not the druggist sometimes use the commercial instead of the medicinal grade?

Doctor ECCLES. I presume that might sometimes occur.

The CHAIRMAN. Do you not suppose they would do that habitually unless there was regulation of some kind or other?

Doctor ECCLES. The Pharmacopœia is the regulation, and if they did that the board of pharmacy would be on them at once and punish them.

The CHAIRMAN. What is the board of pharmacy in this city?

Doctor ECCLES. I do not know who they are here.

The CHAIRMAN. Is there a board of pharmacy?

Doctor ECCLES. Yes, sir; there is a pharmacy law here that controls that. There are only one or two States in the whole United States where the thing is not under perfect control.

The CHAIRMAN. Very well. Proceed.

Doctor ECCLES. Look next at lines 16, 17, and 18, on page 5 of the bill, reading as follows:

Determined by the tests laid down in the United States Pharmacopœia official at the time of the investigation.

This has been declared by the State of Ohio to be unconstitutional, on the ground that no legislative body has the power to delegate its powers to a future crowd of men who are not legislators. In limiting this law you are giving up your power as legislators into the hands of a committee of legislation of ten years from now, so that they become the lawmakers and not you.

The CHAIRMAN. Well, you may pass on from that now.

Doctor ECCLES. The next is on page 6, line 9. I will use for this an extreme case, where the law would be so ridiculous that no one

would attempt to execute it, but it will show you the dangers of a law such as this where positive instructions are given. This reads:

Third. If any valuable constituent of the article has been wholly or in part abstracted.

Now, Pillsbury's Best flour has had the phosphates in great part removed from it, so as to make it pure and white, and the very best flour in the country could not be shipped through the country if this law was enacted and rigidly enforced, and there are thousands of other things that come under the same condemnation.

On page 7, line 11, it reads:

That nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except in so far as the provisions of this act may require to secure freedom from adulteration or imitation.

Now, who shall say how far? Is this not also a delegation of legislative power to somebody unknown?

Turn next to page 8, section 7:

SEC. 7. That it shall be the duty of the Secretary of Agriculture to fix standards of food products when advisable for the guidance of the officials charged with the administration of food laws and for the information of the courts, and to determine the wholesomeness or unwholesomeness of preservatives and other substances which are or may be added to foods; and to aid him in reaching just decisions in such matters he is authorized to call upon the committee on food standards of the Association of Official Agricultural Chemists and such other experts as he may deem necessary.

In this and every other part of the world interests are naturally antagonistic to each other. My business as a physician in some respects is antagonistic to you gentlemen in your health. There are antagonisms running through business in every particular direction. If you undertake to put into the hands of antagonism a business that is antagonistic to their interests it is unjust to that interest that you put into the antagonistic hands. The Association of Official Agricultural Chemists and the Secretary of Agriculture represent foods only in their crude or raw state. They do not represent manufactured foods. They do not represent preserved foods. In fact, gentlemen, the whole community is interested in the preservation of food to the full extent, by refrigerative cars—by any plan by which you can keep food by drying, salting, preserving it in any way. The more such food is preserved the less demand upon their pockets there is for the farmers' products; and the less it is preserved the greater is the demand for the farmers' products.

You understand, the farmers have consciences. I am just speaking of it from a business standpoint, aside from any question of conscience, as to the demand upon their pockets. From a business standpoint it is to the farmer's interest to say that food shall not be preserved, because it creates an increased demand for his products. His selfish interests, aside from his conscience as a man and a Christian, would lead him distinctly to try to destroy or permit of the destruction of food and not its preservation. So that for you to select the Department of Agriculture and the Association of Official Agricultural Chemists is to select men whose personal interests must be overcome by their consciences in order to make them do justice to the people that you have put into their power.

Mr. ESCH. Is not that true of every governmental agency?

Doctor ECCLES. I think not. I do not think you would put into the hands of a governmental agency the power to injure a party that it is to their interest to injure.

Mr. TOWNSEND. You make a proposition there that has at least the merit of novelty when you say that it is to the interest of the farmer not to preserve food. What is the food preserved for? Is it not to be consumed?

Doctor ECCLES. Yes, sir.

Mr. TOWNSEND. Well, the farmer can not reach the market with his product unless it is preserved, can he, many of them?

Doctor ECCLES. To reach the market; that is all right; he will be perfectly willing that you should preserve it that long and no longer. That is for his interest.

Mr. TOWNSEND. He wants it preserved until it is consumed, does he not?

Doctor ECCLES. No, sir; it is to the interest of the farmer if half or three-quarters of the eggs he sends to the city rot or are destroyed before the consumer gets hold of them. It makes three or four times the demand for eggs that there otherwise would be.

The CHAIRMAN. But would not the liability of the destruction of 80 per cent of the eggs affect the price somewhat of the others?

Doctor ECCLES. It certainly would. It would raise the price among the whole community, and that is to the farmers' interest.

The CHAIRMAN. Would it raise or lower the price?

Doctor ECCLES. It would raise the price because you have forbidden that kind of goods, and you have that much smaller supply to meet the demand in the market, and therefore the price is higher. The price goes up. This bill as it stands is simply a bill to raise the price of provisions to the whole community.

The CHAIRMAN. You think if a man was to sell a hundred dozen of eggs, we will say, in the city of St. Louis, going to Chicago, he would get a better price for that 100 dozen of eggs if it was known that 80 per cent of them would be destroyed before they could be consumed? Is that your idea?

Doctor ECCLES. No, sir; my idea is the law of demand and supply, honorable sir. If only 20 per cent would reach market in a fit state for consumption, the others would be thrown on the dung heap, and there would be the same number of people competing for them as for the larger number, and the supply is so small that the demand would raise the price. It is therefore to the interest of the Department of Agriculture, to the interest of the Association of Agricultural Chemists—

The CHAIRMAN. I would like to know whether you have studied economics as thoroughly as you have chemistry?

Doctor ECCLES. I could hardly say that. Still, my training has been such that I have been compelled to study economics as well, and these are principles of economics that are elementary and require no deep study.

Mr. ESCH. Would not the preservation of foods extend the circle of the farmer's market and increase the demand for his products?

Doctor ECCLES. The attempt was made to do so. We tried that with regard to importations abroad, and the German farmers got up

on their heels and forbade the importation of American products. They took that very ground.

Mr. ESCH. Did that increase the demand for the farmer's products? Doctor ECCLES. It did.

Mr. ESCH. I am talking about the farmer here. Has not the preservation of foods increased the value of the American farmer's products here?

Doctor ECCLES. No, sir. We have control of the market here, and we propose to do here just what the German has done. We propose to increase the value of products to the consumer here, as they have done in Germany. Guenther tells us that they have increased the value of the products so in Germany that it has created socialism. Just such a bill as this produced that effect, increasing the value of the products, and it has increased socialism in Germany until the Government is in despair how to deal with it.

Mr. ESCH. I can imagine how people who are depending on the farmer for products would rebel against it when you shut the food off from them, but I can not imagine how food preservation would lessen the value of the farmer's products.

Doctor ECCLES. The farmers want to reverse the situation. They want to lessen the quantity of food by letting it perish. They will have three or four times as much to raise then.

Mr. ESCH. Will it not perish on the farmer's hands? Who will buy the farmer's stuff?

Doctor ECCLES. When it leaves his hands it has not perished.

Mr. ESCH. Who is to buy it from the farmers?

Doctor ECCLES. He has got to buy it to supply the demand.

Mr. ESCH. What demand?

Doctor ECCLES. The demand in the market.

Mr. ESCH. The man who buys it can not get it to market.

Doctor ECCLES. Well, he takes his chance on that. As soon as it is destroyed the farmer has got to make it good, and the man who is trying to buy from him goes back to him for a fresh supply to make good that which has been destroyed or used up; not only what was consumed by the people, but what was lost in transit and in reaching the people.

Mr. WANGER. I may say that the Doctor represents the farmers of my section.

Doctor ECCLES. It is simply a matter of conscience. I am not one who believes that the farmer would willfully try to hurt the workingman by trying to raise the price on his goods. I am simply stating that that tendency is there and overcomes even conscience sometimes, and hence the injustice of putting into the hands of the Secretary of Agriculture and the Association of Official Agricultural Chemists this matter which does not belong there but belongs to commerce. It should go into the Department of Commerce and not into the Department of Agriculture, for, to use a simile—I do not mean to be offensive at all in this, but simply to show the situation—it is the case of the lamb and the lion.

The CHAIRMAN. If those gentlemen who prepare the Pharmacopœia and these agricultural chemists are not fit persons to establish the standards, what would you advise?

Doctor ECCLES. The department of hygiene of the United States,

hygienic chemists, who are physicians and physiologists, should take charge of this matter. It is in their direct province.

The CHAIRMAN. You think, then, that the various State institutions have been mistaken in remanding this matter and their interests to the agricultural chemists, do you?

Doctor ECCLES. The State institutions are agricultural institutions. All these men who have been pushing these bills are interested in the bills personally. It means increased wages to them, when there is a greater demand for chemists. This would create a demand for a hundred chemists where there is not one now, and his wages would go up and he knows it. He knows it would give him a tremendous power to raise his wages in the Department of Agriculture if this passed, and he is working for all he is worth for it. It is to the interest of every one of these men to push these bills with all their might, not, as I say, that they do it willfully, because I know many of them and I know the two at the head, and I know them to be honorable gentlemen, Professor Frear—there is not a better man in the United States—and Professor Wiley. I acknowledge them to be excellent men, and they have not a particle of ill will in their hearts toward the people. It is not that. But their training has been such and the tendency is such that it is impossible for any of us to overcome.

The CHAIRMAN. Tell us who should fix these standards, in your judgment.

Doctor ECCLES. I was going to reach that point of the fixing of the standards when I came to another point, and if you will kindly allow me, I will do that.

The CHAIRMAN. Very well; go on. I thought that would be probably the place where you would want to speak of that.

Doctor ECCLES. Look now at page 10 of the bill, section 11:

That any article of food or drug that is adulterated or misbranded within the meaning of this act.

I object to the word "adulterated" as applied to preservatives, for the simple reason that it is an adulteration of the English language. Those who use the word in the sense in which this law uses it are adulterating the English language. To adulterate an article is to add something to it to lower its value.

The CHAIRMAN. That is not the definition of this bill.

Doctor ECCLES. No; unfortunately, it is not. And that is why I find fault with that.

The CHAIRMAN. This bill has provided its own definitions.

Doctor ECCLES. Yes, sir; and it is on that ground I am objecting, your honor. It is just on that ground I am objecting.

The CHAIRMAN. Go on.

Doctor ECCLES. When preservatives are added to foods no one ever adds them with the object of adulteration. To class them as adulteration is unfair and unjust to the men who add preservatives, because you have already branded them as criminals in the eyes of the public; you have already damaged them; you have already threatened them; and to my knowledge there are merchants now who would come to me and say, "Oh, I would like to have that thing stopped, but I dare not stand up for it, because it would hurt my business." Lots of them say so. They come out incognito in the papers and say these

things, but they do not dare to say them openly for fear it will hurt their business.

To preserve a food is to improve that food and not to adulterate it. It costs more with the preservatives in it than it did before. If the food would not keep without it, he is just trying simply to save what he has bought, so that his property will not be destroyed. That is just what you do when you try to keep fire from burning down your house. You are not adulterating your house when you put a tank on top of it so that you can turn the water on in case of a fire and stop it and save your house. That is not adulterating the house. Adulteration is a crime that with all my soul I wish we could stop, and my heart will go with you in any effort you make to stop adulteration; but the adding of preservatives is so far from a crime that, in my belief, it is one of the greatest blessings that the American people could have—to have permission to use, within certain limits, preservatives.

THE CHAIRMAN. Why do you put a limit?

DOCTOR ECCLES. For the same reason that I would put a limit on the baker who would put too much butter into his bread and other products, so as to make me sick. There are limits proper to be set on all these things. Everything is injurious to health beyond certain limits. There are no exceptions to that. The bread that you eat, the starch in that bread, the sugar; there is absolutely nothing that is not deleterious to health when it exceeds certain points. There is nothing anywhere that you have to consume or eat that will not hurt and endanger your health if it gets beyond certain limits, and everything within certain limits is safe. But there are certain substances where the limit is so low and the danger is so intense that you can not permit their use. It would be unsafe to trust people to use them. It would be unsafe to trust people to put arsenic in food, or strychnine, or to put any substance into food the dose of which is less than a grain. If anything is so that it will injure or kill in a dose of 1 or 2 or 3 grains, it should be positively prohibited from being used at all in any shape or form.

But I do not think that anything should be prohibited the dose of which is above that of vinegar—I mean the acetic acid of vinegar. If you will fix it so that no substance that is more dangerous than vinegar shall be allowed to be put into food at all, you will be right, because vinegar is the most dangerous substance that goes into food. It is more deleterious. There is more danger attaching to vinegar as a poison than there is to salicylic acid, for the quantity of vinegar that will kill is only one-eighth the quantity of salicylic acid that will kill. You can take eight times as much salicylic acid or benzoic acid as you can of vinegar—I mean in the same concentration. If you dilute your salicylic acid to the same concentration and dilute your benzoic acid to the same concentration, you can take eight times as much benzoic acid as you can of vinegar, and you can take eight times as much salicylic acid as you can of vinegar.

Vinegar is the most dangerous substance that is added to food. In its concentrated form it will scar and burn your tissues. Taken into your stomach it will kill you almost instantly. In the concentrated form you can take salicylic acid and it will do no harm. One grain, as it is used in food, protects sufficiently 1 pound of food. That applies to either of these acids I am speaking of. I was the

first, I believe, to advocate benzoic acid. The evidence I can produce, away back in the past, for that purpose. Now, benzoic acid or salicylic acid will sufficiently preserve when you use 1 grain to the pound. If you can find any gentleman in the world—Professor Wiley, here, or anyone—who is willing to stand the test with me, I am perfectly willing to try it. I will take 10 grains of salicylic acid to the dose, and I will let him take 10 pounds of anything in the shape of food to the dose and—

Mr. TOWNSEND. Do I understand you that you want him to take something—10 pounds of it at a dose?

Doctor ECCLES. Yes, sir; 10 pounds at a dose; and I will take the same amount of that thing that goes into it to protect it. I will take 10 grains of the preservative. Then in three hours from now I will take 10 grains more, and we will see if he will take 10 pounds of any kind of food—I do not care what it is—in three hours more. Can he do it? Of course he can not. Which is most harmful? The food is more harmful than the preservative that goes into it. And besides that vinegar is eight times more poisonous than any of these preservatives, and yet you allow vinegar. I say fix your standard with the most poisonous and not with the least poisonous.

Now, the most serious feature of all is this: No gentleman here can tell what is deleterious or dangerous to health as a substance. I will show you how impossible it is to interpret this law. You get 20 men together and put a list before them, salt, sugar—and, by the way, about three hundred and fifty years ago there was a law repealed in Great Britain and France—I am not sure whether it was in Germany or not, but in Great Britain and France, the law that had existed for one hundred years was repealed—making it a crime for anybody to sell sugar except under a physician's prescription. Only upon a physician's prescription must a druggist sell it. No grocer was allowed to sell it. No one dared to sell sugar. That shows that they had the same opinion of sugar then that these gentlemen have of salicylic acid to-day—that it was a poison. But see how we use sugar now. They had the same notion that by long continuance of the use of any such substance the result would be more and more injurious. The reverse of that is true, as you gentlemen all know.

Here is a gentleman with a cigar in his mouth. There is another. Does long continuance hurt you with the nicotine? No; you get more and more used to it, and the whole economy of your body is adjusted to it. Instead of long continuance hurting you, it does you good. Look at old Parr. He chewed and smoked tobacco for a hundred years and died at the age of 110. You get stronger and stronger, and these things have less and less effect upon you. Poisons do not increase in that way. You are using a poison every time you take a drink of tea or coffee, which is a little stronger than salicylic acid and more dangerous than benzoic acid in concentration. Tea and coffee contain those poisons.

Take butter in its natural state, as it comes from the cow, and the color of that butter is an alkaloid—the natural coloring of the butter. Take the food you are eating and you will find it contains poisons, but they are not poisonous in those doses. The system throws them off—no, I will not say that the system throws them off. There is evidence that they are beneficial.

Take an apple or a peach. Every bit of the fruit you eat contains prussic acid—that is, there is contained prussic acid; and that is a deadly poison in concentrated form. But it is not so in the quantity in which it is in the fruit, and that is what gives the delightful flavors to fruits—peaches and apples—the benzaldehyde and the prussic acid. The whole race would have been swept from the face of the earth long ago if the continuous use of small doses of dangerous substances was dangerous. The reverse is true. You know it from your own experience with tobacco and with tea and coffee.

If the chairman will permit it, I would like to distribute these little printed pamphlets to each member of the committee, so that you may all look at it as I go over it rapidly. On page 9 the most serious feature of the whole problem is there given, commencing on that page. It is the last paragraph of page 9. This reads as follows:

Now, let us see what we might expect as the results upon the health of the nation should these bills of Senator Heyburn and Congressman Hepburn become laws in their present form. The belief that our food is a common source of disease infection is not a pleasant one to contemplate, but every day fresh evidence of the fact is appearing.

There has been a great deal said about ptomaine poisoning. I want to call your attention to the fact that ptomaine poison is not anything as compared to what the danger is. The danger is infinitely more than that of ptomaine poisoning, as I hope to show you. The findings of the cause of so many deaths among our troops during the Spanish-American war was that food infected by the feet of flies killed all our soldiers. It was the food. All those soldiers that were killed—far more than the Spaniards killed—were killed by the food. [Reading:]

The findings of the British surgeons concerning the South African troops and of the Boer prisoners in Ceylon was that the terrible death rate was traced directly to food infected by flies.

The CHAIRMAN. I will have to ask you to confine yourself to the bill. We have not the time to read these treatises.

Doctor ECCLES. The most important feature of the bill is centered in the facts that this puts before you.

The CHAIRMAN. Then we will have to ask you, if it is written there, to hand it to the stenographer, and we will have it put into our printed copies of the report.

Mr. RICHARDSON. Can you not point out to us the sections of the bill that you object to and suggest the remedies, and how you would propose to amend and change it?

Doctor ECCLES. The amendments I would make would be not to say "deleterious" or "dangerous substances" at all.

Mr. RICHARDSON. Not to say that?

Doctor ECCLES. Not to say those words.

Mr. RICHARDSON. You do not think that "deleterious" should be put in?

Doctor ECCLES. I think it is too indefinite and too ambiguous, and leaves it for people to interpret it themselves as to what the law is. You will find cranks that are opposed to tobacco, and many people are opposed to liquor, and none of them will agree.

Mr. RICHARDSON. What possible objection can be made to the word "deleterious"—saying that it is unwholesome?

Doctor ECCLES. I was coming to that. Every substance is unwholesome in a certain dose, and is not unwholesome in other doses. There is no substance that is unwholesome in itself, the dose being small enough.

Mr. RICHARDSON. Does not an unwholesome substance or a deleterious substance affect the health of the human being?

Doctor ECCLES. I know of no such substance, and I have made a pretty thorough study of this, as chairman of the committee of the Pharmacopœia having that particular feature in charge. I could find no such substance. Kober, the leading authority in the world on toxicology, says just what I am saying now.

Mr. RICHARDSON. If you were going to describe some substance that was not advantageous to human life, what language would you use?

Doctor ECCLES. I would forbid any substance the safe dose of which is a grain or less. I would not permit or tolerate the putting into food of any substance the dose of which is less than that of vinegar—acetic acid. I would make vinegar my standard, and let them use nothing stronger or more powerful.

Mr. RICHARDSON. Is vinegar deleterious?

Doctor ECCLES. No, sir; I do not think anything is. I would compel them to use substances less deleterious than vinegar. I would not let them go below vinegar. I would allow them to use those substances the dose of which is smaller than the dose of acetic acid of vinegar. Anything with a smaller dose than that I would not allow them to put into food at all, under any circumstances. Substances with larger doses than vinegar I would only allow them to put in in a certain fraction of the dose, and I would make the fraction the same for every substance, with no exceptions. These gentlemen having the matter in charge, if they saw fit, might make it one-fifth of the Pharmacopœial dose, which would represent to the pound a dose such that they would have to take 5 pounds before they would have a small medicinal dose. I would have these gentlemen fixing the Pharmacopœia say that no substance shall be used that is stronger than the acid of vinegar, under any circumstances, because it is dangerous for merchants and others to handle them at all.

Second. I would have the dose whatever they see fit. For my part I think about one-fifth of its medicinal dose, the low medicinal dose of the Pharmacopœia, would be about right; one-fiftieth of the maximum dose, for no man is going to take 50 pounds of food. Of course I would not fix the standard. I would let these gentlemen say how much should go into the food.

Now, you will see how this would do away with all ambiguity. What does the Pharmacopœia say? Seven grains—he must not use more than one-fifth or one-seventh. Turn and find the dose of benzoic acid and divide it by five. The court can tell whether or not they are obeying the law, and it is not left to anybody's whim. It is not for Doctor Wiley or anybody else to say. You have fixed a standard that is absolute.

Now, substances may be called for that are not in the Pharmacopœia, and then let these gentlemen find the dose—the maximum dose—and cut it down to the ordinary dose of the Pharmacopœia and fix it by the same standard, and every substance that is allowed to be put into food shall be subject to that division, by 5 or 10, just as they

in their wisdom shall see fit, and there will be no room for dispute, and nobody will quarrel. Everybody will know what is the law and there will be no quarreling as to what is deleterious or poisonous. There is no such thing as a poison per se.

The most dangerous feature of this whole bill is this: Food needs protection to protect from all diseases except such as come from the punctures of mosquitoes, flies, or other insects that send a germ into the body. All the rest goes through our stomach. When you get diarrhea, it is your food. When you have typhoid fever, it is your food. When your child dies of diphtheria, it is your food. And Doctor Wiley nor no other living man can tell that food containing those germs, and Doctor Wiley knows it. You can, but not in time. There is no standard or test that you can put to it. I would make it punishable for anybody to leave food off of ice. While in the ice none of these germs develop. But there are lots of people who can not have refrigerators. There are lots of careless people who will have the food out exposed, and they swallow the diseases through the food, and they destroy life wholesale.

The first test in regard to the effectiveness of preservatives in stopping disease was in Brooklyn in 1886. They absolutely stopped the use of preservatives there. The death rate immediately rose. It did not rise in Philadelphia or in Baltimore or in Boston. The figures can be found in a place where I have been. In 1890 formaldehyde was discovered to be a powerful antiseptic. About 1890 they began using it in milk. Milk is the most dangerous disease carrier we have in food. They began to use it. What do the statistics of the United States tell us? Compare the official statistics of 1890 with those of 1900 and you will find that the death rate in all these diseases went down. The number of infants that died from these diseases was far less in 1898 than in 1890. The figures are given and the page, where you can hunt it up for yourselves. During those ten years this change occurred, principally in Chicago. The board of health of Chicago would call attention to it. Chicago put no stop to the use of preservatives. The death rate has been declining in Chicago.

In other places, where the preservatives have been stopped, the death rate has risen. Two notable illustrations have occurred lately—exceedingly notable. In North Dakota, the State of pure food—Senator McCumber's State—they tried the experiment. In Germany, particularly in Berlin, in the same year they tried the experiment. These two places were put up as tests. I predicted that the death rate in both those places would rise 50 per cent during that year. Now, what are the official figures? The official figures given by the board of health of the State of North Dakota and the figures of the German Government in their own publications show that they transcended my prediction; that the deaths were nearly three times as many as they were during the same period of the year before.

The CHAIRMAN. From what cause?

Doctor ECCLES. From what cause?

The CHAIRMAN. Yes.

Doctor ECCLES. I predicted it would occur if they stopped the use of preservatives, and it did occur, just as I predicted, from the stopping of the use of preservatives. In no other place in the world

did the death rate rise as in Berlin, and in no other State in the United States did it rise as it did in North Dakota.

The CHAIRMAN. The use of what preservatives was stopped?

Doctor ECCLES. All.

The CHAIRMAN. They were entirely stopped, were they?

Doctor ECCLES. They were stopped to this extent: That the prosecutions of the year before in Berlin were more than doubled, and the merchants were frightened from their use. In North Dakota they were stopped by a rigid law, and the result is shown in the statistics immediately following the passage of those laws.

Mr. RICHARDSON. You state that in that decade, from 1890 to 1900, where the preservatives were stopped entirely, the death rate increased?

Doctor ECCLES. From diseases of the alimentary canal.

Mr. RICHARDSON. And where the preservatives were used?

Doctor ECCLES. The diseases were fewer—the deaths from disease were fewer—always, invariably.

Mr. RICHARDSON. In what States, or can you refer us to those statistics or give us the facts on that?

Doctor ECCLES. In North Dakota, from the official statement, on the whole State. The official figures, just published last year, of North Dakota show that in 1904, as compared with 1903, the death rate was increased.

Mr. RICHARDSON. You attribute that to the stopping of the use of preservatives?

Doctor ECCLES. I predicted that it would occur so.

The CHAIRMAN. And you now affirm that, do you?

Doctor ECCLES. I affirm it, and will explain—

The CHAIRMAN. As your scientific opinion?

Doctor ECCLES. Yes, sir; as my scientific opinion.

The CHAIRMAN. That there was an increase in the death rate of over 100 per cent, and that was the effect of stopping the use of preservatives?

Doctor ECCLES. Yes, sir.

The CHAIRMAN. During that year, 1904?

Doctor ECCLES. Yes, sir.

Mr. RICHARDSON. Then you go one step further and reverse that proposition that where the preservatives were used the death rate decreased very largely?

Doctor ECCLES. Decreased.

The CHAIRMAN. You have examined into this question?

Doctor ECCLES. Yes, sir; I have, pretty thoroughly.

The CHAIRMAN. Then you are familiar with the number of deaths. Give us the number of deaths in 1903 in North Dakota.

Doctor ECCLES. The figures are given here, on page 14 of this pamphlet. In 1903 it was 763; in 1904 it was 1,248, making the increase in deaths 485.

The CHAIRMAN. Was there any increase in the population?

Doctor ECCLES. The increase of the population in one year would be too slight to be taken into consideration.

The CHAIRMAN. Was there any epidemic?

Doctor ECCLES. No epidemic reported.

The CHAIRMAN. In 1904?

Doctor ECCLES. No, sir; none reported.

The CHAIRMAN. Now, give us your information as to the extent to which the law forbidding the use of preservatives was, in fact, enforced. What knowledge have you as to the enforcement of the law?

Doctor ECCLES. I have the knowledge of general opinion. All those who have been sending goods of that kind to North Dakota declare they have been forbidden to carry them there. I heard it stated yesterday by a United States Senator that some one sent goods from Utah or Nevada to North Dakota, and they were rejected there simply because Professor Ladd declared that they contained boric acid. Word was sent back that no boric acid was ever put into them. The Professor said that he did not care if God Almighty put the acid in there, it was against the laws of North Dakota. That was the extent to which the law was enforced. An article appeared stating that North Dakota was the banner State in pure food, and the article was headed "Where pure food can be had in the United States."

The CHAIRMAN. These are the evidences which you have and upon which you base this scientific opinion as to the disuse of the preservatives in that particular year?

Doctor ECCLES. The scientific opinion, Mr. Chairman, is based not on these figures alone, but on the fact that our knowledge of these germs and the way they develop show us that this must be the result, and when we find the figures agreeing with what we conceive would be the result—

The CHAIRMAN. What was the condition as to the observance of the law concerning the use of preservatives in North Dakota in 1895?

Doctor ECCLES. They did not have the new law and did not have the power to enforce it fully. That new law came in at that time.

The CHAIRMAN. What time?

Doctor ECCLES. In 1903—the middle of the year. In 1904—1903 and 1904.

The CHAIRMAN. You have stated that the increase in the death rate was nearly 100 per cent.

Doctor ECCLES. I have given you the figures—from 763 to 1,248.

The CHAIRMAN. And you say that was because of the enforcement of the law that forbade the use of preservatives. What have you to say about the next year, 1905?

Doctor ECCLES. Those statistics are biennial. Those for 1905 will not come out until 1907.

The CHAIRMAN. So that you do not know as to that?

Doctor ECCLES. No, sir. But the other statistics are shown, and they all confirm one another.

I would not allow the use of preservatives indiscriminately in everything, but where food can not be kept frozen and where merchants expose it on their counters for sale I would have them use the preservatives; but I would have them declare that those preservatives are in the food.

The CHAIRMAN. Why would you have that?

Doctor ECCLES. So that the public shall know what they are taking, and use their own judgment.

The CHAIRMAN. If the preservatives are harmless, what business is it of the public whether they are in the foods or not?

Doctor ECCLES. It is the business of the public, even though they are harmless. I would not want to go into the market and buy dog

when I was wanting lamb, and yet the dog would be harmless. These preservatives are used by nature herself. She has provided the same preservatives that these men are using.

Take the seeds of the pear, the apple, the quince, etc. If you bruise that seed the chemicals are in it for protection against germs. A little bruise will produce a little benzoic acid and a large bruise will produce a large amount of benzoic acid, and the proportion of the benzoic acid in that seed is in proportion to the danger of the seed from germs, and that will not be produced except where there is this danger. Where the germs can develop the benzoic acid develops in the seed, and in proportion to the injury the quantity will be greater and greater or where the injury is small the quantity will be less and less. Nature has provided benzoic acid in that way as the preservative of seeds.

Salicylic acid is in abundance in fruit also. In fact, examination shows that there is no acid that is so extensively found in the vegetable world for the preservation of flowers and fruits and leaves of the plants as is salicylic acid. For instance, when a child eats a wintergreen berry or lozenge, or drinks soda water flavored with wintergreen that wintergreen is salicylic acid. In one single lozenge the child will eat as much as it will in a cup of jelly that you forbid. Why allow it to be eaten in candy by the baby or the child and forbid it in the preserves? Those preserves can not be preserved without it.

Let the germ of typhoid fever get into catsup. If that germ is there it can not grow. From twenty minutes to half an hour is the time of division of those germs—two in twenty minutes; twice two in the next twenty minutes. I suppose you have all heard the story of the man who offered to pay a cent a nail for the first nail in shoeing his horse and double every time for each nail thereafter and how it took away his whole fortune. At this rate of increase of the germs it means 16,500 germs in twenty-four hours. That is mathematics. That is, if enough germs get into the catsup, it would kill one man to-day, it would kill sixteen more men to-morrow, if all other conditions were favorable, and so on. Fortunately, other things are not favorable, because other things interfere. But the preservative keeps the germs from multiplying, so that they can not give you the disease; and the object of the preservative is to keep down diseases, and that is the sole reason I am here to discuss these matters. In fact, I have no personal interest in the matter individually.

Mr. ESCH. Is what you have said as to germs true in regard to milk?

Doctor ECCLES. Yes, sir; they will multiply with the same speed; but there are interfering factors with the other bacteria.

The CHAIRMAN. Formaldehyde is not injurious in milk?

Doctor ECCLES. As I have stated before, it is the dose that makes these things injurious. Even arsenic is not injurious in small enough doses.

The CHAIRMAN. What would be the quantity of formaldehyde that you would prescribe or permit as a preservative in milk?

Doctor ECCLES. One-fiftieth of the amount that would produce poisonous symptoms, whatever that amount may be.

The CHAIRMAN. Well, what would that be?

Doctor ECCLES. It is not in my memory just now.

Mr. ESCH. Doctor Vaughn, who appeared before us last week, stated that he would not put any preservative of any kind in milk.

Doctor ECCLES. I know that that is his position.

The CHAIRMAN. What would be the effect of that quantity upon the system of a young child?

Doctor ECCLES. In answering that I will state that the secretary of the board of health of Indiana, who is also a physician, declares that he has so tested it not only on children but on adults and on himself, and he has found that the effect is beneficial.

The CHAIRMAN. That is your opinion, is it?

Doctor ECCLES. Yes, sir, it is; within the proper limits, you understand; and furthermore, with the liberty to the public to know that they are using it, not to force it upon anybody.

The CHAIRMAN. I am asking you with regard to the specific amount you had named.

Doctor ECCLES. I could not give it, because it is not in my memory. I would have to look it up. I can not recall it now. I am not sufficiently familiar with formaldehyde. It has not been my habit to prescribe it, and so I do not know.

Mr. GAINES, of West Virginia. Did you say one-fiftieth or one-fifth?

Doctor ECCLES. One-fiftieth of the Pharmacopœial dose, which is the smallest dose.

The CHAIRMAN. I understood you to say one-fifth of the medical dose.

Doctor ECCLES. The minimum medicinal dose.

The CHAIRMAN. Now you say one-fiftieth.

Doctor ECCLES. One-fiftieth of the dose verging on poisonousness.

Mr. GAINES, of West Virginia. You mean to say one-fifth of the minimum dose and one-fiftieth of the maximum dose of the Pharmacopœia, which is ten times the minimum?

Doctor ECCLES. The Pharmacopœia does not give the maximum. I would have to take that from other quarters.

The CHAIRMAN. If there are no further questions, are there any other gentlemen here who wish to be heard now? Mr. Lannen, is it your wish to address the committee?

Mr. LANNEN. I understand that Congressman Rodenberg wanted to have a hearing on his bill, and I would not like to address the committee before that is under consideration.

Mr. Rodenberg is not present now.

The CHAIRMAN. We are considering the whole subject. It will not be out of your way to refer to any bills that are before the committee.

Mr. LANNEN. I would not want to take up the time of the committee twice, and I would not like to discuss the question until Congressman Rodenberg has opened it up; and, moreover, as there seems to be a disposition here to want to know the particulars of our association and whom we represent and what the standing of those firms is in the country and who the officers of the association are, I would like to get, as far as possible, the facts and figures, so that I can present them intelligently to the committee, and I have not them here at the present time. For that reason I would not like to say anything at present.

The CHAIRMAN. We can not promise you a hearing at any other time than now.

Mr. LANNEN. I understood from Congressman Rodenberg that you told him you would give him a hearing on his bill. When Congressman Rodenberg takes it up I am willing to proceed. If I am mistaken in that—

The CHAIRMAN. I did not understand the Congressman to say that he desired any hearing at all, but simply that he desired some persons should be heard in favor of that bill, and I understood that you and Mr. Yerington were here for that purpose.

Mr. LANNEN. I did not understand it that way, and that was not our understanding with Mr. Rodenberg. The understanding was that he would bring the bill up for consideration.

The CHAIRMAN. All right, sir. If you do not want to be heard we will not press you to.

Is there any other gentleman who desires to be heard?

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,

HOUSE OF REPRESENTATIVES,

Wednesday morning, February 21, 1906.

Committee called to order at 10.10 a. m.

**STATEMENT OF THOMAS E. LANNEN, SECRETARY OF THE
NATIONAL FOOD MANUFACTURERS' ASSOCIATION.**

Mr. LANNEN was sworn by the chairman.

The CHAIRMAN (Mr. Hepburn). Please state your name.

Mr. LANNEN. Thomas E. Lannen.

The CHAIRMAN. Where do you reside?

Mr. LANNEN. I reside in Chicago, Ill.

The CHAIRMAN. What is your profession?

Mr. LANNEN. I am an attorney at law.

The CHAIRMAN. Are you connected with any manufacturing association?

Mr. LANNEN. I am secretary of the National Food Manufacturers' Association.

The CHAIRMAN. Are you a manufacturer of food?

Mr. LANNEN. I am not.

The CHAIRMAN. Who constitutes the officers of that association?

Mr. LANNEN. The president of the National Food Manufacturers' Association is Mr. O. L. Deming.

The CHAIRMAN. Who is Mr. O. L. Deming?

Mr. LANNEN. He resides in Chicago, Ill.

The CHAIRMAN. What is his profession?

Mr. LANNEN. He is at the present time mostly engaged as being president of this association; besides that he is a printer, and has been for a number of years identified with the cannery and dried-fruit packing industry in this country, and is perhaps the best known man in that industry in the United States.

The CHAIRMAN. Is he a packer?

Mr. LANNEN. He is not a packer.

The CHAIRMAN. How has he been identified with this industry?

Mr. LANNEN. He has been identified with the industry as editor of the Canner and Dried Fruit Packer, which is the leading paper of that industry in the United States.

The CHAIRMAN. Where is that printed?

Mr. LANNEN. Chicago, Ill.

The CHAIRMAN. Who are the other officers?

Mr. LANNEN. The treasurer of the association is Mr. J. A. Yerington, of Carson City, Nev.

The CHAIRMAN. What is his profession?

Mr. LANNEN. I would like to say this about Mr. Yerington: That in 1892 Mr. Yerington was an executive commissioner to the Chicago World's Fair; in 1893 Mr. Yerington was the executive commissioner of the Midwinter Fair at San Francisco; in 1898 he was commissioner to the Paris Exposition; in 1902 Mr. Yerington was executive commissioner and president of the Executive Commissioners' Association of the Pan-American Exposition at Buffalo; in 1904 he was executive commissioner and president of the Executive Commissioners' Association of the World's Fair at St. Louis. Mr. Yerington was the Republican nominee for Congress in 1905 from the State of Nevada against Mr. C. D. Van Duzer and was beaten by a few hundred votes, owing to his being away from the State attending to his duties as commissioner at the World's Fair. He is also connected with the canning industry of the Pacific coast and represents those industries in this association.

The CHAIRMAN. Will you tell us his profession? That is what I asked you.

Mr. LANNEN. I am unable to say that he has any profession other than a large mine owner in the West and is connected with large railroad interests in the West.

The CHAIRMAN. Is he a packer?

Mr. LANNEN. He is not a packer.

Mr. TOWNSEND. How connected with railroad interests?

Mr. LANNEN. That I am unable to answer, Mr. Townsend. I don't know about that personally. I do not know anything about his personal affairs.

Mr. ESCH. As a commissioner to these various fairs, did he come in contact with the canning or packing business?

Mr. LANNEN. I am unable to answer that question intelligently.

Now, I am the secretary of that association. The directors of the association are Mr. Thomas J. Carroll, who is president of the Board of Trade of Gloucester, Mass., representing the codfish industry of the Atlantic coast, and who testified before this committee the other day.

The CHAIRMAN. Is he too a manufacturer?

Mr. LANNEN. He is an old manufacturer, as his evidence will show before this committee, and represents an annual output in the codfish business of \$8,000,000. Mr. J. B. Reichmann, president of the National Starch Company, of Chicago, Ill., is another director of this association. He also represents in this association the glucose industry in this country, who consume, I believe, at the present time all of the corn raised in the United States that goes into sirup, the corn products of all kinds. He represents in this association, as I say, the glucose

companies, as well as the National Starch Company, that runs up into hundreds of millions of dollars.

Mr. TOWNSEND. Did I understand you to say that that concern consumes all the corn?

Mr. LANNEN. I said that the glucose industry of this country to-day, as I understand it, consumed all the corn that goes into sirup and corn products.

The CHAIRMAN. Did you not say that this association that he represented did that?

Mr. LANNEN. I said that he represented the glucose interests of this association. That industry of this country, as I understand it, to-day—they are combined—they represent practically all of the corn that is consumed in this country that goes into corn products. I am speaking particularly now about the stuff that goes into sirups, and what is known as corn products. I did not intend to include whiskies, or things of that kind which go through a distillery.

Mr. B. L. Kimball, of Philadelphia, represents in this association the American Fruit Product Company, and through that company represents the large cider and vinegar industries of this country. The other directors of the association are Mr. Yerington and Mr. Deming and myself.

Now, I think it is no more than fair to Mr. Yerington and Mr. Deming and myself, in view of the questions that have been asked here, to state why we are officers of this association. In the first place the question as to the selection of the president of this association was very thoroughly deliberated upon by the association, and it was determined that it would be better to have the executive officers of this association devote their entire time and efficiency to the work, and that it would not do in the short space of time in which we had to do our work to try to get in men who would be mere figureheads in this association.

The CHAIRMAN. What are the duties of this association; what do they do?

Mr. LANNEN. I will read the article of membership——

The CHAIRMAN. We don't care about that; tell us.

Mr. LANNEN. The object of this association, Mr. Chairman, is to secure a proper national food law that will protect the people of the United States against fraudulent, unwholesome, and adulterated food; and at the same time recognize and conserve the legitimate constitutional rights of the food manufacturers of the United States. And also to endeavor to have all of the State food laws in the United States conform to the provisions of that law.

The CHAIRMAN. When was this association organized?

Mr. LANNEN. This association was organized in New York City last May, and it was incorporated under the laws of the State of Illinois in July last.

The CHAIRMAN. How many of the membership are engaged in the manufacture of preservatives?

Mr. LANNEN. I can not tell you right off. I suppose there are eight or ten firms out of about 300 members.

The CHAIRMAN. The membership consists of 300?

Mr. LANNEN. The membership consists of about 300. Now, Mr. Chairman, the membership is published in the Congressional Record of February 19, and does not show that there are 300 members there;

but I want to say this, that there are a number of large associations represented here; for instance, the California Fruit Canners' Association represents, I believe, about 22 of the large individual firms of California, scattered all over the State, who are known locally under their own names, but who are represented in this association through Mr. R. I. Bentley, the vice-president of the San Francisco Chamber of Commerce, and who is the manager of what is known as the California Fruit Canners' Association. So there are about 22 who do not show in this list.

The CHAIRMAN. This association was organized, was it not, for the purpose of preventing any national food legislation that would prohibit the use of so-called preservatives. Wasn't that one of the primary objects of the organization?

Mr. LANNEN. No, sir; that was not one of the primary objects. I have stated explicitly, and, I believe, thoroughly, the object of the association.

The CHAIRMAN. What is the fee of membership?

Mr. LANNEN. There is no fee of membership in this association, and if, Mr. Chairman, you will permit me, I will introduce the constitution and by-laws of the association.

The CHAIRMAN. What are the annual contributions of the members?

Mr. LANNEN. There are no annual contributions of members. Contributions are voluntary on the part of the members.

The CHAIRMAN. What fund has been raised by this association since its organization?

Mr. LANNEN. That, Mr. Chairman, is a question that I would decline to answer, as I can say it does not bear on the merits of this case.

The CHAIRMAN. You refuse to answer?

Mr. LANNEN. I refuse to answer that.

The CHAIRMAN. How has that fund been expended?

Mr. LANNEN. The fund has been expended legitimately for the purpose of conducting our offices in the city of Chicago, for the purpose of keeping in touch with the papers of the United States, and for the purpose of paying the salaries of the officers of this association, for the purpose of being represented here in Washington, and for carrying out legitimately the objects of the association.

The CHAIRMAN. What amount of that fund has been paid to newspapers for advocacy of your particular business?

Mr. LANNEN. There has not been, to my knowledge, one cent paid to any newspaper for advocacy of this cause.

The CHAIRMAN. What has been paid to newspapers?

Mr. LANNEN. There has been absolutely nothing.

The CHAIRMAN. Or to correspondents?

Mr. LANNEN. Absolutely nothing to correspondents, to my knowledge.

The CHAIRMAN. Do you say there has been nothing paid?

Mr. LANNEN. I can not answer that question. I can not answer anything that is not within my knowledge, because I am testifying here under oath.

The CHAIRMAN. If any legitimate payments have been made from

the funds of that association for purposes of that kind, you would, as treasurer, have knowledge?

Mr. LANNEN. I am the secretary, Mr. Chairman.

The CHAIRMAN. As secretary, I mean.

Mr. LANNEN. As secretary, I would have knowledge of it. I would say this: The last time we met and examined the books of the association and went over the expenditures, which was about three weeks ago, I had knowledge at that time of all the moneys that had been expended, and there had not been at that time, to my knowledge, one cent expended. Since that time the officers of the association have been scattered—some have been here, some in Chicago, and some in other places—and I can not tell what those officers have done.

The CHAIRMAN. Do you know who procured the article that appeared in to-day's Brooklyn paper, headed: "Eccles scores Wiley?"

Mr. LANNEN. Do I know who procured that?

The CHAIRMAN. Do you know anything about that article?

Mr. LANNEN. No, sir.

The CHAIRMAN. Do you know who procured it to be written?

Mr. LANNEN. I don't know who procured it to be written. I do believe that the association did not procure the article to be written.

The CHAIRMAN. I thought the article was in a Brooklyn paper, but it is in the Post of this morning. Do you know anything about that article?

Mr. LANNEN. I have not seen the article.

The CHAIRMAN. Do you know anything about the article?

Mr. LANNEN. I do not know anything about the article. All I know of that is that the correspondent of that paper who was here yesterday has been writing, I understand, on this subject, on the merits of this subject, since this committee has been in session here; and he told me last night that he was going to write an article on this subject, and that he was going to set out what he considered to be the merits of the cause and the facts in the case.

Mr. E. S. SMITH. Mr. Hepburn, I wrote that article. I was not interested in any way. I represent the Post here. I was here at the hearings, and I simply stated the facts; I did not state my opinions in any way whatsoever. I went to Mr. Lannen last night and told him I was going to write the article this morning.

Mr. BARTLETT. What is your name?

Mr. E. S. SMITH. My name is Smith, and I am a correspondent here.

The CHAIRMAN (addressing Mr. Lannen). What are the salaries of the various officers of your association?

Mr. LANNEN. The salaries of the various officers of this association—I do not believe, Mr. Chairman, that it has any bearing on the merits of this cause whatever, and, while we have no hesitancy in giving it at all—in fact, I can not say definitely what my salary is. My salary was fixed for the present, for running purposes, at \$50 a week; that was simply for running purposes, and the total salary that I am to receive was not determined by the board of directors. I believe the salary of the chairman of the board of directors was fixed at something like \$100 a week; something like that.

The CHAIRMAN. You are the secretary, are you not?

Mr. LANNEN. I am the secretary; yes.

The CHAIRMAN. You would know transactions of that kind, would you not?

Mr. LANNEN. I would; yes, sir.

The CHAIRMAN. You would be required to record them, would you not?

Mr. LANNEN. I would be required to record them.

The CHAIRMAN. Does your record show?

Mr. LANNEN. My record shows that the thing was left in abeyance, Mr. Chairman.

The CHAIRMAN. How do you mean in abeyance; depending upon what contingency?

Mr. LANNEN. Depending upon the contingency of the association and what funds we would be able to secure, and the success. At the time those salaries were fixed we only had about a dozen members or so, and we did not know whether this association would be a success or not; and the board of directors of this association were not going to enter into contracts that they could not fulfill.

The CHAIRMAN. At the time, who were this dozen or so that you had; who were the members at that time that constituted the dozen?

Mr. LANNEN. Well, I believe there was the American Fruit Products Company, represented by Mr. Kimball; there was the wholesale grocery house of Austin, Nichols & Co., of New York City, represented by Mr. Frank C. Rex. I believe that is the largest wholesale grocery house in the world—importers. There was H. C. Johnson, of Boston, Mass.

The CHAIRMAN. What kind of a house is that?

Mr. LANNEN. Large manufacturers of jellies, jams, preserves, marmalades, and things of that kind. I believe the St. Louis Syrup and Preserving Company were members at that time, but I can not remember now, and I can not state the date, Mr. Chairman, as to when those things were passed. I know we were there.

The CHAIRMAN. Where did you meet for the purpose of organization?

Mr. LANNEN. We met first at the Waldorf-Astoria Hotel in New York City.

The CHAIRMAN. Who was present at that time?

Mr. LANNEN. There was Mr. Max Ams—

The CHAIRMAN. You three gentlemen who were officers were present, were you not?

Mr. LANNEN. No, sir.

The CHAIRMAN. You were not?

Mr. LANNEN. I was the only one of the officers present.

Now, if the chairman will permit me, I will state how I came to be present.

The CHAIRMAN. I don't care anything about that. Who was present?

Mr. LANNEN. Mr. Max Ams—

The CHAIRMAN. You understand the line of this interrogation?

Mr. LANNEN. I can not understand where it originated from.

The CHAIRMAN. I have been informed that this was simply a fake organization for the purpose of affecting this legislation.

Mr. LANNEN. Yes, sir.

The CHAIRMAN. And that the gentlemen who are represented as the officers are simply the collectors of funds of the gentlemen who are

engaged in the manufacture of preservatives, and canneries of that kind, who may be willing to contribute in order to further the purposes of preventing that national legislation; and you can see that this line of interrogation has been made with a view of permitting you to disabuse that opinion. If it is not true we want to know it, and if it is true we want to know it, because it will, in a measure, affect the influence of your exhortation on this committee. It is an entirely legitimate investigation, and I do not want you to understand that it comes from a preconceived notion at all, but simply to elicit the facts.

Mr. LANNEN. That has been a charge that has been made through the newspapers of this country from the beginning, that this organization—it was a charge that was made on the floor of the Senate of the United States by the Senator from North Dakota, and it is absolutely untrue. And I think it is no more than fair to me, or to the organization that I represent, to give me permission here now to go into the details of this association and give you the facts, and all of the facts, concerning our society. Now, if you will indulge me a few minutes—

The CHAIRMAN. Go on, briefly.

Mr. LANNEN. I will tell you how this association—who the members of the association are, and all of the facts.

Mr. WANGER. Did you state who was at that preliminary meeting at the Waldorf-Astoria?

Mr. LANNEN. Yes; I will get to that in my explanation of this association.

Last year and for a number of years past there has been an effort made to pass food laws in the Congress of the United States. Those food laws have not been acceptable to the food manufacturers of the United States, and many of them have said so plainly and fearlessly. Others of them have been afraid to do so for reasons which I will draw upon later on in my talk to this committee. Now, knowing that the great public sentiment which has been aroused all over this country was demanding a national food law, and knowing that the national food law would benefit the large legitimate manufacturers of the United States—that is, the proper kind of a national food law—it was conceived by some of the manufacturers that it would be well if they should draft a national food law of their own, which would express their views; and I have been informed by some of those manufacturers that Senators of the United States said that the manufacturers of this country did not know what they wanted and that it was high time that they gave them some information as to what they wanted. That being the case, they conceived the idea that it would be well for them to draft a food law of their own, which would be acceptable to them, and so far as possible be absolutely fair to everyone concerned in a national food law. With that purpose in view they called a meeting in New York City at the Waldorf-Astoria Hotel.

The CHAIRMAN. I judge there were a large number of manufacturers unable to attend that meeting. Who called them?

Mr. LANNEN. I am getting to that. But the members who were present at that meeting that night were Mr. Pritchard here [indicating], who is a large manufacturer of jellies, jams, preserves, and catsup, condiments, and things of that kind, and who can speak for himself; Mr. Max Ams—Mr. Charles M. Ams rather—of the large

firm of Max Ams & Co., of New York, manufacturers of jellies, jams, preserves, condiments, and so forth—goods of that kind. There was Mr. Edwin C. Johnson, representing the firm of H. A. Johnson & Co., of Boston, Mass. They are also large manufacturers of bakers' supplies, and I believe, also, that they manufacture jellies, jams, preserves, marmalades, and things of that kind.

There was Mr. B. L. Kimball, representing the American Fruit Products Company, of Rochester, N. Y. They are large manufacturers, the largest manufacturers, I believe, in the world, of cider vinegar and things of that kind, products of apples, fruit products. They comprise a very large number of factories in New York in that line. There was Mr. Frank C. Rex, representing the wholesale grocery house of Austin, Nichols & Co., of New York City. I believe they are credited with being the largest wholesale grocers and importers in the world. There was Mr. Locke, representing the Pacific Coast Borax Company. There was Mr. George Seaman, representing the Heyden Chemical Works, and Mr. M. Cohn, representing the Preservaline Manufacturing Company. Those gentlemen were the only gentlemen—

The CHAIRMAN. At whose instance did those gentlemen assemble? Who invited them to the Waldorf-Astoria that night?

Mr. LANNEN. I believe it was Mr. Charles M. Ams.

The CHAIRMAN. You did not?

Mr. LANNEN. I did not. They wired me to come down there and attend that meeting as an attorney, and outline to them how such objects as they had in view of securing a proper national food law could be brought about.

The CHAIRMAN. Whom do you mean by "they?"

Mr. LANNEN. I can not say just now. I had some letters from Mr. Ams—

The CHAIRMAN. Who wired you?

Mr. LANNEN. That I can not say; I don't remember; in fact I am not sure that I did get a wire or whether I got a letter at that time. I had considerable correspondence at that time with Mr. Cohn, of the Preservaline Manufacturing Company, whose industry would be put out of business to-day by the rulings on this law; and he thinks he has some direct rights. That constituted that committee that met that night and outlined practically this entire association as it exists to-day. We did not organize that night any more than that I should go around and find out the sentiments of the food manufacturers of the United States in regard to a movement of that kind. Later on—in June, I believe it was—we held a large meeting at the Waldorf-Astoria Hotel, in New York City, for the purpose of effecting a further organization, at which meeting there were about 70 of the largest food manufacturers in the United States. They came there from all over the country. We discussed this work very thoroughly.

Now, it was not until July, 1905, that we incorporated and elected the present officers of the association.

Now, Mr. Chairman, as I said a moment ago, the members of this association are published in the Congressional Record of Monday, February 19, and I want to say further than that, that the names of those members are signed to the article of membership of this association according to the terms of our constitution and by-laws and

are on file in my office in the city of Chicago and can be produced before this committee if necessary.

The CHAIRMAN. How many names did you say are attached to that document?

Mr. LANNEN. I have not counted them; I don't know how many names are on this list.

The CHAIRMAN. No; on that paper on file in your office.

Mr. LANNEN. All the names shown in the Congressional Record are—I believe they are all, if my memory serves me right, there, practically all there. I would not say that every name is there. Some people have written me letters and asked me to put them down as members; but I believe that practically every one of the names as filed with the original articles of membership is there. I think it no more than fair to permit me to read the articles of membership to this committee.

The CHAIRMAN. Read it.

Mr. WANGER. What is the date of the Record?

Mr. LANNEN. Monday, February 19.

Mr. BURKE. What page?

Mr. BARTLETT. Page 2704.

Mr. ESCH. Was that list published with a speech made by Senator Money?

Mr. LANNEN. In the speech made by Senator Money, because Senator McCumber, of North Dakota, made the direct charge, unqualified, on the floor of the Senate, that Senator Money did not know the name of a single member of that association—that not a Senator on the floor of the Senate knew the name of a member of this association.

Mr. SHERMAN. When was that charge made?

Mr. LANNEN. That charge was made on Monday, February 19; and, moreover, he accused Senator Money of having been imposed upon; that some one had gone to him and gotten him to introduce this bill, and that he did not know who he was representing. That has been the charge that we have had to combat since we have organized from every sort of source.

Mr. BURKE. Did Senator Money reply immediately to that charge?

Mr. LANNEN. Yes, sir; and handed in the names of the members of the association, and asked the Clerk of the Senate to read it to the Senate of the United States, and they would not accord him time; but they permitted him to have it printed in the Congressional Record. Moreover, the members of this association are wiring from all over the United States to the United States Senate, and I believe have sent hundreds of telegrams to pass Senator Money's substitute for the Heyburn bill. They have made no bones about it; they have not consulted anybody—have not tried. Because we have not come out and made a great noise about it and tried to tell Tom, Dick, and Harry who are the members of the association, and exposed the books, and everything of that kind is no reason why we are a non-entity.

The CHAIRMAN. Will you read that paper?

Mr. LANNEN (reads):

THE NATIONAL FOOD MANUFACTURERS' ASSOCIATION.

[Incorporated under the laws of the State of Illinois.]

ARTICLE OF MEMBERSHIP.

We, the undersigned, representatives of food-manufacturing industries, being fully cognizant of the many hardships worked upon producers of articles of food whose products are subject to the ever-changing and frequently incompatible provisions of the various State food laws and the inconsistent and radically different rules and standards established by the different food commissioners and food officials, and believing that a national food law is necessary to protect alike the public and the honest manufacturers of food, and believing that a great public sentiment is demanding such a law, and in view of the fact that various State legislatures have this year, more than ever before, enacted unfair, unjust, and discriminating food laws, do hereby subscribe our names as members of The National Food Manufacturers' Association, a corporation duly organized under the laws of the State of Illinois, and agree to support its constitution and by-laws and indorse the action of this association in its efforts to secure a national food law at the next Congress of the United States, which law shall be one that will, within its scope, protect the public from unwholesome, adulterated, and fraudulent foods and conserve the rights and legitimate interests of the various food industries of the United States, to the end that the State legislatures will have all food laws conform to the provisions of the same.

Now, Mr. Chairman, that is the article of membership to which all of these members have attached their names. Here are the constitution and by-laws adopted by the association, and I ask to have them both incorporated in the record.

The CHAIRMAN. You may hand them to the stenographer.

Following are the constitution and by-laws:

CONSTITUTION AND BY-LAWS OF THE NATIONAL FOOD MANUFACTURERS' ASSOCIATION.

[Incorporated under the laws of the State of Illinois.]

CONSTITUTION.

ARTICLE I.—*Name.*

This association shall be known as "The National Food Manufacturers' Association."

ARTICLE II.—*Objects.*

The objects of this association are:

1. The conservation of the rights and legitimate interests of the food manufacturers and distributors of the United States.
2. The protection of the public from unwholesome, adulterated, and fraudulent foods.
3. The securing of the passage by the Congress of the United States of a national food law embodying the above principles, to the end that the State legislatures will have all food laws conform to the provisions of the same.

ARTICLE III.—*Members.*

SECTION 1. Any individual, firm, or corporation in good standing, engaged in the manufacture or sale of foods or legitimate ingredients used in the manufacture or preparation of foods, or any association of such individuals, firms, or corporations may become a member of this association by signing its article of membership: *Provided always*, That all admissions to membership in this association shall be subject to the approval of the board of directors of this association.

SEC. 2. If the membership is in the name of a firm or corporation, the name of the individual member of the firm or corporation who shall exercise the powers of membership for such firm or corporation shall be duly certified to the secretary of this association, and no such firm or corporation shall have more than one vote on any subject.

ARTICLE IV.—*Officers.*

SECTION 1. The officers of this association shall consist of a president, a first vice-president, a second vice-president, a third vice-president, a fourth vice-president, a secretary, and a treasurer.

SEC. 2. A board of directors, consisting of seven members, shall be elected by ballot at each annual meeting, and shall hold office for twelve months or thereafter until their successors are elected and qualified.

SEC. 3. Immediately after the annual election the board of directors shall meet and choose the officers of the association. The president, secretary, and treasurer need not be members of this association.

SEC. 4. The president, secretary, and treasurer appointed by the board of directors shall receive a compensation to be fixed by the board of directors.

ARTICLE V.—*Board of directors.*

SECTION 1. The board of directors shall consist of seven members, who shall elect their own chairman. Four members of the board shall constitute a quorum for the transaction of business.

SEC. 2. The board of directors shall have power to fill vacancies in its own membership in the advisory board and in the offices of this association, which may be occasioned by death, resignation, or otherwise.

ARTICLE VI.—*Advisory board.*

SECTION 1. It shall be the duty of the board of directors to appoint an advisory board consisting of one representative from each general distinct food industry of the United States.

SEC. 2. The advisory board may recommend to the board of directors or to the association such actions or such measures as, in its discretion, may further the interests of this association or its members.

ARTICLE VII.—*Meetings of the association.*

SECTION 1. The annual meeting of the association shall be held on the second Tuesday of June, at such time and place as the board of directors may determine and designate. The board of directors shall have power to call a special meeting of this association when, in their discretion, it is necessary. Notice of all meetings of the association shall be sent to the members by the secretary at least ten days prior to the date of the meeting, and in the case of the annual meeting at least thirty days prior to the date of said meeting. One-fifth of the members of this association who shall be present in person or by proxy shall constitute a quorum for the transaction of business.

ARTICLE VIII.—*Amendments.*

This constitution may be altered or amended by a vote of at least two-thirds of the members of this association present, in person or by proxy, and voting at any meeting, or may be amended by letter ballot by a vote of two-thirds of the members of this association, and not otherwise: *Provided*, The amendment shall have been first approved by two-thirds of the members of the board of directors.

BY-LAWS.

ARTICLE I.—*Duties of the president.*

SECTION 1. The president, or, in his absence, the vice-presidents, in their successive order, shall preside at all meetings of this association and shall cast the deciding vote at any meeting where there shall be a tie. It shall be his duty to conduct the work of the association in accordance with the plans and under the direction of the board of directors.

ARTICLE II.—*Duties of the vice-presidents.*

SECTION 1. The vice-presidents, in their successive order, shall perform the duties of the president during the absence or inability of the latter to perform the same.

ARTICLE III.—*Duties of the secretary.*

SECTION 1. The secretary shall keep a record of all meetings of the association or of the committees of the association, conduct and keep all correspondence of the association, collect the moneys due to the association and pay the same forthwith to the treasurer, taking his receipt therefor; and shall perform all such other work of the association assigned to him by the board of directors. He shall give bond in an amount to be fixed by the board of directors, such bond to be issued by some recognized surety company, and the expense thereof to be borne by this association.

ARTICLE IV.—*Duties of the treasurer.*

SECTION 1. The treasurer shall have charge of all moneys belonging to the association. He shall give bond in an amount to be fixed by the board of directors, such bond to be issued by some recognized surety company, and the expense thereof to be borne by this association.

SEC. 2. The treasurer shall make all disbursements for conducting the business of the association, such disbursements to be made only upon order of the board of directors, in writing, attested by the secretary or president, or both.

SEC. 3. The treasurer shall retain all vouchers, keep correct accounts, and render his report at the annual meeting of the association, or shall render a report to the board of directors when requested to do so by said board or by the president of this association. His books and reports shall be presented to in writing, drawn upon the treasurer, attested by the secretary or president, or and if found correct and approved, shall be certified and accepted.

ARTICLE V.—*Powers and duties of the board of directors.*

SECTION 1. The board of directors shall meet at such time and place as the chairman of the board may select, or upon the call of the secretary at the request of two members of the board of directors, in writing, at the time and place named in such call, upon due notice of the same being given to each member; and the expense attendant upon such meetings to the individual members of said board, and the expense of such meetings, shall be borne by the association.

SEC. 2. The board of directors may ascertain the policy of this association by submitting any questions relating to the objects or affairs of the association to the members of the association at a regular or special meeting of the association, or by letter ballot of the members of the association.

SEC. 3. The board of directors shall direct the work of the association, fix the amount of the compensation of the president, secretary, and treasurer of this association and the manner in which the same shall be paid, and shall fix the amount of the bond of the secretary and the bond of the treasurer; retain such legal assistance as may be required to further the interests of this association; appoint committees; engage necessary employees, and perform such other duties as may be necessary or appropriate for carrying on the work and accomplishing the objects of this association, subject only to the provisions of its constitution and by-laws. All disbursements of the association necessary for conducting its business shall be made by the board of directors upon order, in writing, drawn upon the treasurer, attested by the secretary or president or both.

SEC. 4. The board of directors shall pass upon all legislative measures before the same are presented for passage to the Congress of the United States.

ARTICLE VI.—*Meetings.*

SECTION 1. The order of business at all meetings shall be:

1. The president, or, in his absence, the vice-presidents in their successive order, shall call the meeting to order and ascertain if a quorum be present.
2. A quorum being present, the minutes of the last meeting shall be read.
3. Report of the officers.
4. Unfinished business.
5. Miscellaneous business.
6. New business.

ARTICLE VII.—*Funds.*

SECTION 1. The funds of this association shall be derived from voluntary contributions on the part of its members or from others who may wish to contribute the same. All moneys contributed to this association shall be and remain the property of this association, and be disbursed as provided for under section 3, article 5, of its by-laws.

ARTICLE VIII.—*Amendments.*

SECTION 1. These by-laws may be amended at any meeting of the board of directors, due notice being given to each member of the proposed amendment.

Mr. TOWNSEND. How do you expect that the State laws are going to be affected by anything we may do? What is your idea about that?

Mr. LANNEN. My idea about that is just this: That the bill which we have introduced in this Congress is so plain and so palpably fair that the State legislatures will take notice of the provisions of the same and amend their State food laws to conform to it as far as possible.

Mr. BARTLETT. There has been considerable progress in that way, hasn't there? A great many of the States have had no food laws. My legislature from the time the legislature meets has been having a number of amendments added to its food law, in order to conform to some laws that have passed in other States.

Mr. LANNEN. But those food laws have been of a different character. They have not been uniform, and they are getting worse every day. I would like to say, in that connection, that there has been an effort made by the Commissioners of the United States to unify the food laws of this country, but they are split upon the subject, they are not agreed, they are fighting among themselves to-day, and there is no hope, so far as I can see, of ever accomplishing that through the food commissioners themselves. There are diversified opinions upon the subject entirely. I am familiar with what I am speaking; I was a member of that association; I was two years secretary of the food commission of Illinois, and I was a short time with the State food commissioner of Kentucky. I was for a number of years identified with the National Association of State Dairy and Food Commissioners, and I know the effort that has been made among those people to unify the food laws, and I know that the conditions are getting worse instead of better.

The CHAIRMAN. What has been done in the preparation of a bill?

Mr. LANNEN. Now, Mr. Chairman, I was asked by the association to draft and submit a food law to the members of the association.

The CHAIRMAN. Did you do so?

Mr. LANNEN. I did.

The CHAIRMAN. When?

Mr. LANNEN. I drafted that law last winter—it was a year last winter—when Congress was in session. I drafted the food law, came down to Washington, and endeavored to have that food law introduced at that time, but the session was so far along that we did not think it advisable. It appeared to us that there wasn't any chance that the Hepburn bill would go through at that time, and we preferred to make our struggle over the national food law at this session of Congress; so the bill was not introduced.

Mr. ESCH. Your bill is the Rodenberg bill?

Mr. LANNEN. Yes, sir. I amended that bill after having heard the views of the various manufacturers of the United States. I studied the subject thoroughly and amended the bill and this summer submitted the bill to the members of the association; and, with some slight modifications and suggestions which were made, the bill was adopted by the members of this association, and it was mailed to those members—to all members—they were all asked to study it carefully and express their opinions of the bill, and they did; and those letters indorsing that bill are on file with me now, and I have them down in my room—at least a great many of them—and I can offer them to this committee if they want them.

Mr. TOWNSEND. Were there any objections to the bill by any member?

Mr. LANNEN. Not to the general principles of the bill. There were objections by some of the members to some of the clauses of the bill; some of them wanted more than we could hope to get. For instance, we advocate the use of preservatives, and in advocating the use of preservatives we have them stated on the label. Some of our members said they ought to be allowed to use preservatives, and that they should not be required to state them on the label. But as to the general tone of the bill there was no objection, except that there was objection to the bill in the way that while they wanted the use of preservatives and the use of colors under proper regulation, some of them thought that it was too great a task to come down here, in view of the great public sentiment, and endeavor to get a bill like that passed; that we could modify it a little more and get a bill that would not allow the use of preservatives until this campaign against us was over. But it was the view of the majority of our members that it was better for the members of this association to come down and ask openly for what they wanted and make a fight for it and not hedge on that subject.

I would like to say about the membership of the association that you will find, I believe, in this association there are about 22—it seems to me there are 22—of the leading food industries of the United States represented. I will not go into the details of that, because I have not got them in my head. I can tell how those industries are divided, in a general way—for instance, the codfish industry, Mr. P. J. Carroll—

The CHAIRMAN. We haven't time to hear any biographical sketches of these gentlemen.

Mr. LANNEN. I think as I am representing this association, which represents several billions of dollars, that this committee can very well listen—

The CHAIRMAN. We haven't the time to devote to that. You will have to limit this to the discussion of this subject.

Mr. LANNEN. Mr. Chairman, the charge has been made that we are a nonentity; that we are a fake. I think it is not any more than fair that I should say that we represent the largest food industries in the United States and the most reputable food industries in the United States, and I also want to say—

The CHAIRMAN. As I said a moment ago, you can write that out and hand it to the clerk or the stenographer.

Mr. LANNEN. Mr. Chairman, you must not lose sight of the fact

that the industries that I represent were permitted to come here before this committee—

The CHAIRMAN. Let me suggest to you that that settles the matter. We will not go into that branch of inquiry.

Mr. LANNEN. All right. Now, Mr. Chairman, are there any other questions that any other member of this committee would like to ask regarding our association or any object or any member of the association?

Mr. BARTLETT. The purpose of the association and the purpose of this bill, as I understand it, is in line of accomplishing, by your way, the purpose which the bill known as the Hepburn bill seeks to accomplish, excepting that it seeks to accomplish that in a different way; that there are some parts of the Hepburn bill that you object to, and you want to accomplish the things in the way indicated in the Rodenberg bill?

Mr. LANNEN. That is the difference.

Mr. ADAMSON. You are willing for Congress to go into this, but you differ in regard to the details.

Mr. LANNEN. That is exactly our position.

Mr. BARTLETT. You are in favor of pure-food legislation by the Congress of the United States, excepting that you want it done in the way you indicate in your bill.

Mr. LANNEN. Yes, sir. Our article of membership, to which every member has attached his name, shows that explicitly.

Mr. TOWNSEND. You understand that the committee does not want to prevent you from showing up in the record these points that you want to make in regard to the character of your law.

Mr. LANNEN. The point that I was trying to make, and that the chairman has prevented me from stating further—

Mr. TOWNSEND. You have the same right to put that in the record; it will be looked over.

The CHAIRMAN. I suggest to you that you can write out anything of that kind that you want to present and give to the stenographer. What I object to is the occupation of your time in repeating the details.

Mr. LANNEN. If the chairman will pardon me, this is a matter—

Mr. ADAMSON. The question of who is behind the thing is not half so important as what the thing is.

Mr. LANNEN. That is what I was trying to bring out, that it is the merits of the case rather than my personal affairs.

Mr. ADAMSON. The reasons for or against a particular measure.

Mr. LANNEN. That is it exactly. It should not have been gone into, in my estimation, at all.

Mr. RYAN. You can proceed and discuss the merits of your bill as compared with the others.

Mr. BARTLETT. One other purpose of this is to get rid of what you call conflicting laws on the subject of food in the various States, so that there will be no worry or confusion by reason of conflicting State laws. That is another reason, is it?

Mr. LANNEN. You have hardly stated it just right. We do not hope to get rid of these laws, because—

Mr. BARTLETT. Get rid of the effect of them.

Mr. LANNEN. Yes, sir; we can not get rid of the State food laws; they are an absolute necessity. Nor do we wish to get rid of them.

Now, in treating with this subject we have endeavored to treat the article of food as an article of interstate commerce pure and simple. We have tried to have the law attach to the article the moment it was packed and delivered for shipment as an article of interstate commerce, and we have endeavored to have the law cease to affect that article of food the moment it ceases to be an article of interstate commerce. The difference between our bill and the Hepburn bill and several of the other bills now pending before Congress is that we have first limited ourselves to foods and drinks consumed by human beings, and have not endeavored to regulate foods consumed by domestic animals, as I believe the Hepburn bill endeavors to do. In the second place, we have endeavored to treat the article simply as an article of interstate commerce, whether that commerce be between two States or among the several States or among the several States and the Territories and the insular possessions and the District of Columbia.

Mr. BARTLETT. With foreign countries, too?

Mr. LANNEN. And with foreign countries. The Hepburn bill undertakes to regulate the interstate commerce in food and drinks, and at the same time, in the same bill, undertakes to regulate the retail sales of foods in the District of Columbia and the Territories; and that is a subject which we believe should be covered by another act of Congress. This is a law which purports to be a law to regulate interstate commerce, and we believe it should be confined to that subject and to that subject alone.

Mr. BARTLETT. Why?

Mr. LANNEN. Because it is better in trying to accomplish an object to concentrate all one's efforts on that particular object.

Mr. BARTLETT. I thought you might have a legal reason.

Mr. LANNEN. There is no legal reason that occurs to me at present.

Now, in our bill we have endeavored, as I said before, to stick to interstate commerce and the original package. There is no doubt but what Congress can not control that package in that form and while it is an article of interstate commerce. The second paragraph of the Rodenberg bill is a paragraph intended to facilitate the operation of the law; to make it easier upon the Government of the United States to enforce the law, and at the same time by a mandatory act to protect the retail dealer of the United States or anyone who might receive an article of food.

Now, I wish to dwell briefly on the way in which both the Heyburn bill and the Hepburn bill endeavor to protect the retail dealers of the country in response to a demand that has come from every retail dealer in the United States. The Hepburn bill says that a retailer shall be exempt from the provisions of the bill if he can establish a guaranty signed by the wholesaler or manufacturer from whom he received the goods. Now, let us dwell a moment from a legal standpoint on the effect of that provision of the Hepburn bill. In the first place, this is a law which endeavors to protect him. If it endeavors to protect, it seems to me that there is some way by some mandatory clause by which you should be protected by the operation of the law itself; but the way the provision stands at the present time it is necessary for the retailer, when he orders goods from a manufacturer, through the manufacturer's salesman, to say to that manu-

facturer, "I want you to send me a guaranty that these goods comply with the provisions of the national food law." The manufacturer is not compelled to give him that guaranty, and the retailer must hustle around and get that guaranty.

Now, supposing he does get it. The United States inspector comes along, picks up the article in the original package—the retailer who received it perhaps has delivered it to a restaurant or something of that kind in its original form, or somebody who consumes it in the original package—and the inspector, under the provisions of the Hepburn bill, starts a case against the retailer. The inspector does not know whether the retailer has a guaranty or has not. He has no reason to know that, and if the United States Government is going to enforce this national law the way the food commissioners enforce their laws it will be the object of the United States Government to have its inspectors concealed from identity while they are purchasing food, because the food inspectors do that usually, at least the food commission of Illinois, with which I am most familiar, did it.

They go into a store, not saying who they are, and purchase as an ordinary customer, so that the grocer will not know who they are and will give them the same article that he will give another customer that comes in there. The inspector gets hold of that article, and he brings a suit against the retailer or the man who received the original package. Now, what must that man do? He must go to work, come into court, hire a lawyer, pay that lawyer for appearing in court, come in as defendant in the case, and prove not only the existence of the guaranty, but prove that the guaranty is in conformity to law; and not only that—he must prove that the guaranty relates to that particular article of food that the United States inspector happened to pick up. When he has done all that, then the Hepburn bill says that he shall be exempt from the provisions of this act. But it makes no provision for paying the court expenses to which he has been put, the expenses of going into court and proving his innocence.

Mr. BARTLETT. You do not provide for paying a man who is indicted for any crime. The Government does not pay those expenses unless it is somebody who is a pauper.

Mr. LANNEN. That is very true, but the point I am trying to make here as to the bill is the way we have endeavored in the Rodenberg bill to protect the retailer. In the Rodenberg bill we have a mandatory clause compelling every man who ships goods in interstate commerce to put a label, brand, or tag on the original package with the name and address of the shipper on that label, brand, or tag. And we make it an offense for him to fail to put that label, brand, or tag on the goods. We also go on and specify that no retailer or any person shall be convicted for handling those goods while that label, brand, or tag is attached to them, and that only the man whose name and address appear on the label, brand, or tag shall be responsible for the condition of those goods.

Now, in reference to the United States inspector, the moment he goes to the railroad station to see who shipped those goods that label, brand, or tag is there to inform him. He does not have to go and hunt up the bills of lading, he does not have to go through the books of the railroad office to find who delivered those goods. He has the label, brand, or tag before his eye to tell him just exactly who was responsible for starting those goods in shipment, and he will be

responsible for those things as long as they remain articles of interstate commerce. Suppose those goods are shipped from New York to Chicago and they are placed in the hands of the jobber in Chicago. A United States inspector comes along and he finds a package there. He sees the name and address of the New York dealer on the package, and that informs him immediately that the New York dealer is responsible for those goods and not the man in Chicago, and he will not, if he is familiar with the provisions of this act, start a case against the man who received the goods, but he must go to the man in New York who started the goods there.

Now, we go further than that, and we provide that if a retailer or any other person receives an article of food which is not labeled, branded, or tagged in the manner and form provided in this act, that he shall, before he delivers those goods as an original package, follow those goods and put his name and address on them, and that he shall be responsible from that time on for that article of food.

Mr. TOWNSEND. I can see how your argument would apply very forcibly to the reputable manufacturer; but supposing this retailer should handle goods that were produced, we will say, by a fake concern, an irresponsible concern, and conceive, if you can, that there might be a collusion between the retailer and the so-called manufacturer for the production and sale of those goods. How would you reach the real offender in that case? How would the people be protected under those circumstances?

Mr. LANNEN. In the first place, Mr. Townsend, the bill says that it shall contain the correct name and address of some person shipping or delivering the same. Now, in that case, if that was a forgery and there was no such person in existence, the retailer would immediately be drawn into the collusion and he would be compelled to disclose the identity of the person who shipped those goods. He certainly would know who he got those goods from. It would be simply a matter for the United States Government to find out who was perpetrating a fraud of that kind.

And another thing, Mr. Townsend, in dealing with laws we must deal with the principle of the thing and the general effect of the law, and not with any specific instances, unless they are vital. I believe that is the general principle of all laws. They must look to the general effect, as far as possible, and the principle of the law. It is impossible to get any law absolutely perfect; it is impossible to do anything absolutely perfect, so far as our poor human efforts can go.

Mr. TOWNSEND. I agree with you on that, and I agree with you also that legitimate manufacturers of this country want a good, workable, and fair pure-food law; and the object, the main object, of a pure-food law is to protect against the illegitimate producers and manufacturers, it seems to me.

Mr. LANNEN. Here is another feature of that particular phase; this is very important and you must not lose sight of it: The honest manufacturer of food is willing to be responsible for the condition of that food under this food law or under any food law, while that food remains in the original package, in the form in which he put it up and before any retailer has had a chance to open that package and adulterate it. But he does not want to be held responsible for the criminal acts of any man who may get hold of those goods and break the package and adulterate them.

You, gentlemen, may not be familiar with the conditions of trade, but that condition which I have just explained to you here exists in this country. For instance, retailers buy goods in bulk and they put them in a tea chest or in barrels; they may have one chest standing on their case for a year, and I desire to say that there are very few retailers in this country who can tell you exactly whom they bought a certain article of food from at a certain time unless it is in the original package. The manufacturer does not want to guarantee against the criminal acts of anybody. He is willing to stand for those goods while they remain in the form in which he put them up and before anybody has had a chance to tamper with them.

Another effect of the Hepburn bill, in my opinion as an attorney, is as to the effect of the guaranty which the wholesaler must give. Does that permit anybody to sue on that guaranty, or is that merely a protection against the provisions of this act? What does it guarantee? That is the question I want to dwell on briefly; that this mandatory provision which, by direct act of Congress makes a manufacturer himself protect the retailer, does not make the retailer get out and hustle to secure a guaranty, or beg for it, or anything of that kind; but it makes it necessary for the manufacturer to protect him before he starts those goods in interstate commerce. It seems to me it is fair. This is no guaranty—I don't believe in a guaranty—but it is merely to protect the retailer. That is the object you want to accomplish, and you can accomplish that object by compelling the manufacturer to put on the package a cross—an X—and if you see that X it should be a protection to the retailer. And if the manufacturer shall be responsible it does not require a guaranty to protect the retailer. Any regulation of Congress, any specific act which it will compel the manufacturer to perform, will protect the retailer.

Mr. BURKE. You represent, as I understand it, an association made up entirely of manufacturers, do you not?

Mr. LANNEN. Yes, sir. They are wholesale grocers—some retail grocers.

Mr. BURKE. I was going to ask you why you are concerned about the retailer. You seem to want to protect the retailer.

Mr. LANNEN. Because it is a subject that is being legislated upon, and because we want to have that legislation as fair as we can. It is a subject with which we must deal. We have met every issue on this legislation, and we propose to take on every issue here and to point out the way in which we think it is fair. That is the reason why we have taken it up, because this Congress proposes to enact legislation whether or no on the subject, and we certainly want to express our view on that particular phase of the question, and we have no desire whatever not to want to protect the retailer.

Mr. CUSHMAN. That is, as I understand you, for your prosperity, and depending upon your goods ultimately being handled by the retailer?

Mr. LANNEN. Certainly.

Mr. CUSHMAN. Any bill which affects the retailer will react and finally reach the manufacturer.

Mr. LANNEN. It comes back to the manufacturer every time; only the way things stand now the case comes back to the manufacturer after the retailer has plead guilty in some State and paid his fine.

After everything has been settled in court and the whole thing wiped out, the retailer goes, as a matter of fact, to the manufacturer and tells him that he sold him the adulterated goods and got him into trouble, and asks him to pay back the fine. The manufacturer wants that placed directly on him.

Mr. ADAMSON. There are a good many men of high character and standing handling these commodities, and they are entitled to protection. It is the business management and character of the firm, is it not?

Mr. LANNEN. That is not the object directly, as I understand it. The particular object about which we are talking is the means of protecting the retailer not only against the dishonest manufacturer, but against all manufacturers, and against trouble of all kinds.

Mr. ADAMSON. You say you are a lawyer. Can not each State take care of its people on the subject of what it eats and drinks?

Mr. LANNEN. Absolutely; that is what we are trying to do. We can take care of the retailers under the provisions of this act, not on the State law.

Mr. ADAMSON. Suppose you did not have that act and let every State do its duty?

Mr. LANNEN. Then there would be no occasion for my being here this morning.

Mr. ADAMSON. Your State does its duty, mine does; point out those which do not.

Mr. LANNEN. Well, I don't know that there are any States which do it at the present time. That is hardly the question. The duties which the different States are performing are different.

Mr. ADAMSON. I am trying to find some reason why it is necessary for Congress to go into this business at all, and why the States do not attend to the protection of their people with food laws.

Mr. LANNEN. The question which you asked me is the reason for the passage of this national food law?

Mr. ADAMSON. Yes, sir. Why you have to come to Congress to get such a thing done as is in every one of these bills, when it has been the inherent power in law in all countries in all times since the days of Rome to punish common cheats and swindlers who were selling one thing and delivering another.

Mr. RICHARDSON. Don't you think it would be very unfortunate to have 45 different standards for pure food in the 45 different States? Don't you think it would be much more advantageous to trade and commerce of the Government of the United States if there should be a Federal act creating a standard so far as the Federal Government has control of that question?

Mr. ADAMSON. To enable you to answer that question, let me ask if it would not be better to accomplish all this by simply having an empire?

Mr. RICHARDSON. Oh, no; I recognize State rights, when State rights come in.

Mr. ADAMSON. And I recognize State duties, and every State ought to do its duty and keep off of Congress.

Mr. RICHARDSON. And I recognize Federal functions just as I do the State functions.

Mr. LANNEN. In reply to the question of the gentleman, I would like to say this, that at present, as has been demonstrated by wit-

nesses before this committee, it is absolutely impossible to put up an article of food that will pass under all of the State food laws. It is also absolutely impossible to formulate a label that will be a legal label in every one of the States.

Mr. ADAMSON. Right there I will call your attention to a provision in the Hepburn bill. There is a provision in the Hepburn bill that a manufacturer may conform to the regulations of any foreign government. Wouldn't it be just as easy for you to conform to the requirements of each State by labeling your goods for those States as it would to conform to the requirements of each of the foreign governments? Don't you owe just as much courtesy to the States as you do to the foreign governments?

Mr. LANNEN. No; I do not want to say that we don't owe as much responsibility to our States, because we do. But we have no control over foreign governments; and I want to say right now that a national food law is something that is going to benefit, not only the manufacturers of this country, but the people of the United States. It is going to protect the States, and this bill does not in any way interfere with State rights, nor can it interfere with State rights.

Mr. ADAMSON. I didn't say anything about State rights; you can not interfere with State rights. I want to make States do their duty—those trifling ones that depend on Congress for protection.

Mr. LANNEN. You can make these States do their duty as well after this bill has been enacted as now, just the same; so I can not see that it is material in any way.

Mr. RICHARDSON. Well, if you had State laws regulating pure foods in all of the States of the Union, and they were exactly the same, don't you think you can make these labels conform to the different expressions that these different food commissioners will give in the different States?

Mr. LANNEN. In that we do. But I want to dwell on that subject and state many instances of that unfairness—

Mr. ADAMSON. Do you think that there is a State in the Union that has not a provision in its laws that a man who sells one thing and delivers another shall not be punished?

Mr. LANNEN. That is a matter of State legislation, and we are discussing the merits and the reasons why we should have national legislation. In the first place we should have some guide by which the States might come—if this Congress of the United States enacts a national food law the different States will study the provisions of that law and largely adopt them. That has been the tendency of all the States so far as I am familiar with the laws. They endeavor to do that—in fact, I understand the legislature of Iowa—

Mr. RICHARDSON. The reason for that is because they want to have a uniform standard.

Mr. LANNEN. Here is another reason why the manufacturers of this country—the honest manufacturers—want a national food law, and why they want a stringent national food law, not a food law that is a sieve. That has been charged against our bill. That would not better conditions in this country. We want a national food law that the Government of the United States will enforce like it enforces the counterfeit-money laws, or the revenue laws. We feel that if the Congress passes a national food law it will enforce the law, and enforce it strictly. Why do you want a strict law?

Because the manufacturer in Chicago who puts up a bottle of catsup, we will say that costs 10 cents to manufacture, has got to sell that bottle of catsup throughout the several States of the Union in competition with other manufacturers in the city of Chicago and in competition with other manufacturers in other cities of the United States, and he wants to know that in getting out his salesmen, selling those goods, that cost him 10 cents to manufacture, that he can ship it in interstate commerce, and that it is going to cost his competitor just about 10 cents to manufacture that bottle of catsup, and he can figure how he can do his business to the best advantage. He can not do that to-day.

Mr. ADAMSON. Isn't one of the main reasons that this legislation is demanded that the expense of prosecution will be put upon the Federal Treasury?

Mr. LANNEN. I have never heard of that before; I have never heard of that particular phase.

Now, gentlemen, section 3 of our bill places the enforcement of the law under the Secretary of Commerce and Labor. It seems to me that the Department of Commerce and Labor is a Department that was precisely created by the Congress of the United States to regulate and have charge of the commerce of the United States, and as this is a bill which is not concerned with anything but commerce, a bill that attaches itself to an article when it becomes an article of commerce, and ceases to attach itself to that article when that article ceases to be an article of commerce, I can not see any reason why it is not a subject to be placed under the Department of Commerce and Labor. It seems to me that the Department that was organized and equipped, at least from its very name, should be equipped to have charge of commerce in every nook and corner of the United States. That is one reason why we want this law placed in that Department.

We also object to having the enforcement of the food law placed in the Department of Agriculture because, from the experience of the past, it has been demonstrated that there is too much of a tendency to exercise arbitrary power in that Department, and the experience of the past has demonstrated to the manufacturers of this country that we believe we would not get fair play under that Department.

Now, section 4 of this Rodenberg bill undertakes to dwell on the manner in which samples shall be procured. It seems to me that when the United States Government comes along and takes some of your property away from you that that property should be taken away from you by due process of law. It does not seem to me that it is proper to leave to the Secretary of Agriculture or anybody else to establish rules and regulations under which a man's property shall be taken away from him. It seems to me that the manner in which the property shall be taken away from the man should be specifically determined by an act of Congress. That is the only way in which you can say that he shall be separated from his property by due process of law.

Now, in this section 4 of the Rodenberg bill we say that the Secretary of Commerce and Labor shall procure samples of foods and drugs, but when a United States inspector takes a sample he shall divide that sample into three equal parts; that all those parts shall be the same as the original, and that one of those parts shall be given to the party from whom the sample was taken, and that he shall—

Mr. ADAMSON. While you are discussing that section, it does not make any difference under what Department you place it, the analysis and passing upon of such samples as are purchased by consumers in the natural course of trade is one thing and putting the Government in the business of manufacturing new crimes and punishing people who are induced to sell specific samples is another thing.

Mr. LANNEN. It is necessary that the defendant have a part of the sample on which the case is brought, if he is going to have any chance to defend himself in any court.

Mr. ADAMSON. When a consumer in the course of trade buys it and finds some of it impure, isn't that soon enough to start a prosecution?

Mr. LANNEN. That is carrying it away from the principle on which I am arguing. The way the State food laws are enforced to-day, an inspector comes to a retail grocer and purchases a sample of food. The retail grocer does not know who the inspector is—he is not notified of the fact at all—and he does not know about the matter at the time. The State chemist takes the sample into the laboratory and makes a chemical analysis. He uses all of the sample in making that analysis. Then he starts a case in court. Now, gentlemen, from a legal standpoint I beg to call your attention to the fact that the case when started is a case on that particular sample. The only question in court then is—

Mr. ADAMSON. Then the case is never made on something that the party had done in the course of trade. It is all manufactured by the spies of the Government.

Mr. LANNEN. Oh, no; he has sold it to the Government.

Mr. ADAMSON. Of course.

Mr. LANNEN. That is a sale of the food; he has sold it to the inspector; therefore he has sold the food within the statute; and not only that, but the question is here under this law as to the food shipped, and all you have to do is to prove the shipment.

Now, in getting back to the contention I am making here. The case is on that particular sample which was purchased by the food commissioner, and the only question before the court is whether that particular sample is adulterated or whether it is not adulterated, whether it contains certain ingredients or does not contain them or whether it is below standard or above standard. Now, the food commissioner has analyzed it, and he claims he finds a certain substance in there. He goes into court and presents his evidence and swears to it, and I would like to have you tell me what defense the retailer has, or the defendant has, in this case. He has absolutely no defense. Here is the one sample in court, and here is a man swearing under oath that he found such and such a thing in it. What can you do? The only thing you can do is to break him down by cross-examination. You can offer no evidence on that sample. You may go in and prove that every other sample of that brand was pure, but it does not prove that that sample was pure. It is not direct evidence and the defendant has no evidence to combat the evidence against him.

Mr. ADAMSON. You are aware of the fact that in a great many countries and States juries are averse to believing witnesses who patch up cases in that way in any sort of crime. It is all right about the official report of the examination. Anything done by one

of the spies for that purpose has always been unpopular in a case before a jury. You would not be effective before the jury in that case.

Mr. LANNEN. I have been engaged in the trial of cases—food cases—probably several hundred, and I don't think that is the condition of affairs.

Mr. ADAMSON. Wouldn't this appear better and satisfy you as well: That you authorize either of the Departments mentioned to analyze anything sent to them by any purchaser or by any State food authority and send to the court where the case is the expert witness who makes the analysis and let him testify in the case in court?

Mr. LANNEN. What evidence has the defendant there?

Mr. ADAMSON. That is his lookout.

Mr. LANNEN. That is just what we are trying to give him.

Mr. ADAMSON. You are trying to protect the defendant in this case.

Mr. LANNEN. We want to give him some kind of a chance to defend himself. Hasn't the defendant any rights——

Mr. ADAMSON. I guess he will find them.

Mr. LANNEN. We want this law to protect the rights of the defendant to some extent. The United States Government should not take away his right to defend himself.

Mr. ADAMSON. It can not.

Mr. LANNEN. That is just what you are doing.

Mr. ADAMSON. If you were to pile up laws as high as this Capitol it would not affect that.

Mr. LANNEN. You take away from the man his only evidence; you give a man the right to analyze it; the only evidence in court is on that sample; the only defense of the defendant is in his ability to break down the chemist.

Mr. ADAMSON. I am not asking you to take the sample away from the man. You would commit an outrage more impure than the food, if you do that.

Mr. LANNEN. That is a different phase of the question that I will not argue just now.

Now, gentlemen, we have endeavored to deal with that subject of compelling the United States Government to divide the sample into three equal parts—to give one part to the defendant, and to notify the defendant of the time and place in which the sample was taken and the purpose for which it was taken, and to seal it up with an official seal, so that it shall be considered as a part of the original sample.

The CHAIRMAN. You don't think that this defendant would have any protection in the official oath of the officer, in the scientific character of the man who made the analysis, or in the oath of the witness who might testify as to what he found in the sample? Those things would be no protection to him at all, you think?

Mr. LANNEN. Mr. Chairman, at the present time chemistry is a very technical and uncertain science. There are few chemists who will agree on the process of analyzing food. One chemist may claim that because he has put certain chemicals into the food and because of putting those certain chemicals in there he has produced a purple light, or a blue color, or something in the food; that that demon-

strates that there is salicylic acid in there or some other acid or some poison, and another chemist will come along and tell you that it does not demonstrate anything of the kind. It is a very uncertain and unsettled science in certain respects, and it is a very exact and settled science in other respects. But that does not settle the question as to the rights of the defendant in this case. Why do you want him to have to rely upon the oath of any man? Why is he not entitled to some protection himself, and why is he not entitled to have his oath put side by side with the oath of the Government, so that the jury may judge between the two? Why should the oath of the Government be submitted to the jury and not the oath of the defendant?

Mr. BARTLETT. You do not ask the right to put in evidence?

Mr. LÄNNEN. He has no evidence, as I have demonstrated, whatever. The only evidence is in that sample, and it has gone into the possession of the Government and has been used up by the Government.

Mr. ADAMSON. Suppose, when he finds out that he is to be prosecuted in that way, that he tries to prove by people who delivered the package out of the box, the clerks in the store and other people, that it was out of the same box; and suppose he goes and gets a man of his own and analyzes every other package in that box, do you say then that he can not defend himself and introduce that and show that he was not offering anything impure?

Mr. LÄNNEN. That is not direct evidence—it does not prove anything. Here is a bottle of ink [picking up a bottle of ink from the table], and there are other bottles on the table. Those bottles are pure ink. It is not proved that this bottle is pure because of that. This bottle may be impure, while those other bottles down there may be absolutely pure.

Mr. ADAMSON. That is not the question. You propose to indict that man for offering for sale impure goods. You have a spy to get one package out of the whole box. He has it analyzed, and this other man has every other package analyzed by another chemist, and that is put in evidence before the jury.

Mr. LÄNNEN. I want to take exception to the remark of the gentleman that we have spies. That is something we are trying to avoid in our bill; that does not apply to the Rodenberg bill.

Mr. ADAMSON. No matter what you call the man whom you want to make the tests. You say you could not defend a man in your country before a jury by proving that every other package was pure by an analysis by another chemist?

Mr. LÄNNEN. I could prove it in this way, that where a man is charged with murder, and there is direct evidence against him, but the only testimony he has of direct evidence is his own testimony, and he will endeavor to prove that that man was not guilty of murder by bringing in the people who knew him during his life and proving that he had lived a good life. Now, would that prove that he did not commit the murder?

Mr. RICHARDSON. That would generate a reasonable doubt.

Mr. LÄNNEN. It is a reasonable doubt, but not direct evidence.

Mr. ADAMSON. In some States that might be treated as direct evidence. But that is not the question I propounded. I propounded a case when he had other testimony.

Mr. LANNEN. I want to ask you gentlemen right now, if the United States Government takes this bottle of ink away from me and analyzes all of it and says that the bottle of ink is impure, and I have not got any of that bottle of ink in my possession to analyze, will you tell me how I am going to prove by direct evidence that the Government is wrong?

Mr. ADAMSON. I would try several bottles in the package of which that was one.

Mr. LANNEN. But the charge that this bottle is impure does not charge anything as to the other bottles; they are not in the case.

Mr. ADAMSON. The indictment in fact charges him with selling impure or adulterated ink. You base it upon the bottle, of course. I think any honest defendant would be able to satisfy a court and jury by showing eleven others that are proven good, and he would hardly be affected.

Mr. LANNEN. They are affected; that has been the experience in the past. We have had no defense; we have had no chance in court. He has absolutely no defense, and the best thing he can do is to pay his fine and settle the case. We have no evidence, the evidence is all in the possession of the prosecution.

Mr. ADAMSON. I believe you said you were a lawyer; I misunderstood you.

Mr. LANNEN. I am arguing.

The CHAIRMAN. Proceed with the argument.

Mr. LANNEN. I hardly remember just where I was.

Mr. ESCH. You were on section 4 of the bill, which compels the Government to divide the sample.

Mr. LANNEN. Yes; section 4 compels the Government to divide the sample into three equal parts, and give to the defendant one part, one part shall be retained by the Government to be handed over to the court in the case, and the other part shall be analyzed by the Government inspector. When the case is brought into court the evidence of the defendant on his part of the sample shall be permissible evidence, but he can offer the testimony of his chemist tending to prove what his chemist found in the article of food. The Government can offer its evidence, and if there is a direct conflict between the evidence of the defendant and the evidence of the Government, then the court may, in its discretion, order that the sample retained by the Government shall be analyzed by a disinterested chemist, and that that shall be offered to the jury.

Mr. WANGER. What would become of the trial while the analysis was being made?

Mr. LANNEN. The trial would probably have to wait until the sample had been analyzed. It is not compulsory upon him to have that analysis. It says the court "may, in its discretion, have it analyzed."

Mr. ESCH. Who pays the costs of the disinterested analysis?

Mr. LANNEN. That would go with the costs of the case. If the defendant lost the case he would have to pay the costs of the case, naturally; all defendants do. If the Government lost the case it is no more than right that it should stand the costs.

Now, I would like to read the food law of the State of Massachusetts, which is considered one of the best food laws in the country—no; I will read the food law of Delaware first [reads]:

DELAWARE.

Food law requires that samples taken be divided into two equal parts, and one part offered to person in whose possession article was found, with written notice of time, place, and date when and where said sample was taken, and that it was taken to be analyzed.

MASSACHUSETTS.

Food law requires that before sample is analyzed a portion thereof shall be reserved and sealed by the analyst, and upon complaint against any person such reserve portion shall, upon application, be delivered to the defendant or his attorney.

ENGLISH SALE OF FOOD AND DRUGS ACT, 1875.

[Law Reports 38 and 39 Vict., Statutes 10, 1875.]

Page 578, section 14: The person purchasing any article with the intention of submitting the same to analysis shall, after the purchase shall have been completed, forthwith notify the seller or his agent selling the article his intention to have the same analyzed by the public analyst, and shall offer to divide the article into three parts to be then and there separated, and each part to be marked and sealed, or fastened up in such manner as its nature will permit, and shall, if required to do so, proceed accordingly and shall deliver one of the parts to the seller or his agent. He shall afterwards retain one of said parts for future comparison and submit the third part, if he deems it right to have the article analyzed, to the analyst.

ENGLISH SALE OF FOOD AND DRUGS ACT, 1899.

[Law Reports 62 and 63 Vict., Statutes 36-37, 1899.]

Page 196, section 2 (a): The officer procuring the sample shall divide the same into four parts, and shall deal with three of such parts in the manner directed by section 14 of the sale of food and drugs act, 1875, as amended by this act, and shall send the fourth part to the board.

Page 199, section 10: In the case of samples of milk taken in the course of delivery, or of margarin or margarin cheese forwarded by a public conveyance, the person taking the sample shall forward by registered parcel or otherwise a portion of the sample, marked and sealed or fastened up, to the consignor. If his name and address appear on the can or package containing the article sampled.

IMPORTED GOODS.

Page 195, paragraph 4: Where the commissioners of customs take a sample of any consignment in pursuance of such directions, they shall divide it into not less than three parts, and send one part to the importer and one part to the principal chemist of the government laboratories and retain one part.

That is a principle of law that has been recognized by some of the best States in the country and by the old English common law. It is a principle which, if you consider for a moment, must appeal to all of you.

Now, gentlemen, here is another section, section 7, which I want to dwell on. Before I go to section 7 I want to take up section 5 for a moment. Section 5 requires that the analysis of the foods be made in the division of chemistry of the hygienic laboratory of the Public Health and Marine-Hospital Service. Now, gentlemen, that is a

department which is in charge of doctors, and which, as I understand it, has a laboratory which is excellently equipped to perform this kind of work.

Mr. RYAN. You want to get away from the Department of Agriculture?

Mr. LANNEN. Entirely. We want it placed in the department of Public Health, where it belongs, and where almost all of the States which enforce their food laws to-day have it, through the boards of public health. That is where it belongs.

The CHAIRMAN. How many chemists are there in that laboratory?

Mr. LANNEN. I will say this, Mr. Chairman, that I am not familiar with that laboratory, but that Senator Money wrote a letter to the Secretary of the Department of Commerce and Labor trying to get some facts in regard to this matter, and we have been unable to get it as yet. I have not had time to call upon the head of the Public Health department to get the facts. I presumed that the Congressmen here would be more familiar with that subject than I am.

Mr. RICHARDSON. You want it transferred from the Department of Agriculture to the Treasury Department?

Mr. LANNEN. Oh, no.

Mr. RICHARDSON. The Public Health department is under the jurisdiction of the Treasury Department.

Mr. LANNEN. I understand that it is under the Department of Commerce and Labor.

Mr. RICHARDSON. No, sir; it is under the Treasury Department. The Public Health and Marine-Hospital Service is under the jurisdiction of the Treasury Department.

The CHAIRMAN. Why do you put this duty upon these two Departments—the Treasury Department and the Department of Commerce and Labor?

Mr. LANNEN. Because that is a Department which is equipped especially for looking after this particular line of work, of public health of the country, and it seems to me that that is the place to have it. Now, if that department had been placed under the Agricultural Department I have no doubt but what we would be just as willing to have it placed there as we are now. If that department is in the Department of Commerce and Labor we want it to go there. We consider that this is a matter of public health, and that they should deal with it. It has been our experience that the doctors of the country are fairer than the agricultural chemist.

Mr. RICHARDSON. Do you know that it is a fact that the Agricultural Department now has over a hundred chemists, while the Public Health and Marine-Hospital Service has only two or three?

Mr. LANNEN. That does not get away from the principle of the thing and the question of right and wrong. That is what we are contending for. This is a thing which is going to exist in this country for a long time to come. It is a mighty large field.

The CHAIRMAN. We will have to suspend this matter at this time.

(Thereupon (at 11.50 a. m.) the committee went into executive session.)

STATEMENT OF MR. EDMUND W. TAYLOR, OF FRANKFORT, KY.

The CHAIRMAN. Where do you reside?

Mr. TAYLOR. Frankfort, Ky.

The CHAIRMAN. What is your business?

Mr. TAYLOR. I am connected with the firm of E. H. Taylor, Jr. & Sons, whisky distillers.

The CHAIRMAN. Are you a distiller?

Mr. TAYLOR. Yes, sir; I am associated with the firm and have had some experience in the business.

The CHAIRMAN. How long have you been engaged in that business?

Mr. TAYLOR. At various times since—I suppose about ten or fifteen years.

(At this point the witness was sworn by the chairman.)

The CHAIRMAN. Proceed, if you please.

Mr. TAYLOR. The term "distilled spirits," as used by the Internal Revenue Department since the passage of the internal-revenue laws in 1862, when they originated on the Federal statutes, comprises a number of different species of distillates of high alcoholic content, and each one of these species bears a specific name which differentiates it from the others. The reason for such specific difference in nomenclature is that each one of these species of distilled spirits is different in its character. The potable species are whisky, brandy, rum, and gin. The industrial are alcohol and high wines. There is another species which has a commercial purpose peculiar to itself. That species is characterized by the Internal Revenue Department with the name "neutral spirits." It is made for the sole and single purpose of adulteration.

This neutral spirits is capable, because of its lack of secondary parts, of supplying alcoholic content to each and every one of the potable species I have named, and operates as a filler or an extender of volume, and one barrel of genuine brandy, whisky, rum, or gin can be extended with an unlimited amount of this neutral spirits, and the admixture simply colored back to the distinctive color of the genuine article, and artificial secondary products supplied, which will give the entire volume of the admixture the appearance and apparent character of the genuine article intended to be imitated. This neutral spirits of which I speak was described to you yesterday morning by Mr. Hough, attorney for the National Wholesale Liquor Dealers of America, as pure ethyl alcohol, or according to the methods, which he described, of its distillation, the middle product of fractional distillation.

I listened to Mr. Hough in his description of the process of distillation, and I did not hear him describe the distillation of whisky or brandy or rum or gin or any of the potable distilled spirits known either to the Department of Internal Revenue as such, or to the Pharmacopœia, or, so far as I know from preliminary definitions, to the United States Food Standards Commission, or to the National Association of State Dairy and Food Products, which consists of the food commissioners of the various States. All of these different organizations have made certain tentative definitions of whisky, and each and every one of them has ascribed to it certain characteristics which

are not possessed by neutral spirits, which is a colorless, odorless, tasteless alcohol, and which has nothing about it which would enable one to call it anything except a neutral product.

Therefore I feel that it might interest this committee if I explained briefly the difference between the distillation of whisky and the distillation of neutral spirits, which can be expressed in a few words.

The processes of grinding the grain and the processes of converting the starch in the grain in the scald tun are chemically similar, and the actions which take place in fermentation are of the same general chemical character, but in the manufacture of whisky the grain used, in the first place, gives the terminology to the character of the whisky which is to be made, whether it is bourbon or rye, and the grain must be of such a character that when it finally comes out and the distillate results from it, that distillate, if intended to be sold as whisky, must require, in order to be a commercial product, that the grain originally used was of such a character as not to produce an inferior article.

In the production of neutral spirits any article possessing starch value capable of conversion into sugar and alcohol may be used as the source, whether grain or potatoes or anything of that kind, and because of the fact that when it finally comes out as neutral spirits everything has been eliminated from it except the plain ethyl alcohol it makes no difference whether a certain character of articles is produced, whether they are inferior or deleterious, because they are going to be eliminated by fractional distillation and either thrown away or used as a by-product for other purposes.

In the mashing or scalding the mash for whisky is usually, by all distillers, scalded to a temperature of about 112° , the boiling point of water, and it is seldom, if ever, scalded higher than that, because it is not the purpose to bring out from the grain used its full alcoholic potentialities, because that develops the potentialities for an increase in the quantity of certain so-called impurities. In the scald which is made for neutral or distilled spirits—neutral spirits—the boiling point runs away beyond 112° , and everything that is possible of an alcoholic character is extracted from the article used in the mash. The color of the beer which results from the scald or the mash of the grain used to make whisky is a pale coffee color, a yellowish color. The beer resulting from the mash, which is to be converted into neutral spirits, is a dark coffee color. Now, when it comes to the question of distillation, the fermented mash intended for whisky is put through a still and run at a proof of about 65 per cent. That is called the low wines, technically, or rather colloquially, in the distilleries.

Now, that liquid is again distilled and run through what is known as a doubler, and a second distillation is made, and that results in new whisky. That is run, as Mr. Hough told you yesterday, at approximately 100 proof, and therefore in order to get that 100 proof there must be some uniformity in the process which brings about that result. That product at 100 proof is not high wines, as Mr. Hough stated yesterday. It is new whisky. High wines is a product made entirely different from whisky, and it is a distillate run to a proof of 185 or 180, or around there. And that product, high wines, made in an entirely different way from whisky, is what was used by the rectifiers from the starting in 1862, when the revenue laws were put on

the statute books. That was used by the rectifiers simply to convert into this neutral spirits, then through a leaching process in order to get a neutral spirit which they could use as a basis for imitating whisky, which was run by a double process of distillation at about 100 proof.

Now, from the time that the revenue laws were first passed and the tax was first imposed on distilled spirits a distinction was recognized between a distiller, a wholesale liquor dealer, and a rectifier. A distiller operated a distillery and produced a distillate. A rectifier took high wines, as required by law, over 600 feet away from a distillery, ran them through a leach tub and got a neutral spirit, and converted those neutral spirits into an imitation product by the introduction of artificial secondary products.

A wholesale liquor dealer was a man who under a Federal license sold either one of these products. In 1868 an amendment to the revenue laws allowed a rectifier to "spuriously imitate" whisky. Those two words are on the Federal statutes to-day. They have never been taken off.

About the same time a rectifier was no longer subjected to the inconvenience of leaching high wines, and high-wines distillers were given the privilege of finishing the high-wines product by fractional distillation through a single process at a distillery into neutral or cologne spirits. From that day the "rectifier," so far as that word meant to purify anything, ceased to exist, and the only clauses under which he operated were the clauses permitting him to compound, to make mixtures, to spuriously imitate the other potable spirits; and he then proceeded to do that by buying neutral spirits from a neutral-spirit distiller, bringing them into his rectifying establishment, and converting them into imitation liquors, selecting what ever he wanted to imitate. That privilege was exercised to such an extent, and has been exercised to such an extent since it was accorded, that the situation to-day is this: The census of 1902 makes the statement that most of the distilled spirits consumed by the American people to-day consists either of the cheapest concoctions of neutral spirits and drugs or the simple blending of young and old whisky; and that statement, which I have repeated verbatim, will be found in volume 9, page 616, at the bottom of the right-hand column, of the Twelfth Census.

Now, this subject has been thrashed out before various committees of Congress session after session, and there is volume after volume on it in the document rooms of the House and the Senate. I have before me now Report No. 2601, entitled "Whisky Trust Investigation," made by the Committee on the Judiciary in 1893 under a resolution which, among other things, authorized the committee to find out "whether rectifiers under the license granted by the Government adulterate, pollute, or otherwise drug the product purchased or distributed by them, and if so adulterated, whether such product when so adulterated is sold and distributed throughout the country to be used as a beverage."

There are ninety-odd pages of investigation and testimony illuminating the practices of the rectifier. In these pages will be found the testimony of the Deputy Commissioner of Internal Revenue, Mr. Wilson, who afterwards became the Commissioner of Internal Revenue,

Ways and Means Committee to the House, in recommending the bill for passage—approving the bill. Here is the official report. It is all very well for Mr. Hough or myself to come up here and express an opinion as to the intention of the law, but I think it is to the advantage of this committee if we can produce some official expression as to the purposes of that law, and take the matter out of contention. Here is the report of the Ways and Means Committee.

The CHAIRMAN. Do not take the trouble to read that.

Mr. TAYLOR. I will just read this paragraph:

The bill as amended has the approval of the Secretary of the Treasury and the Commissioner of Internal Revenue, who have carefully scrutinized its provisions.

The obvious purpose of the measure is to allow the bottling of spirits under such circumstances and supervision as will give assurance to all purchasers of the purity of the article purchased, and the machinery devised for accomplishing this makes it apparent that this object will certainly be accomplished.

Mr. ADAMSON. Then, does the official personally see and know that in the bonded warehouse the liquor is put in the bottles and the stamps are put on the bottles?

Mr. TAYLOR. Absolutely. I would like to file this with the committee, if you would care to have me. Here are the regulations, the law and the regulations, governing the whole operation.

Mr. ADAMSON. Is there no such thing and no possibility of any such thing as stamps and bottles and corks being furnished, and the bottles being filled from barrels elsewhere than in the warehouse?

Mr. TAYLOR. Absolutely none, so far as the committee itself says that the machinery—the safeguarding of the machinery—is adequate. And my experience has been that it is absolutely adequate, and the penalties are extremely heavy.

Mr. ADAMSON. You know about the actual practice?

Mr. TAYLOR. We conduct our own bottling warehouse; yes, sir.

Mr. ADAMSON. I am trying to lead you up to the fact that there is some fraud, perhaps, in that. You do see in a good many places smaller bottles that are labeled "Bottled in bond." Some people say that the liquor is not as good as the liquor they get in quart bottles. How do you account for that?

Mr. TAYLOR. I can not explain that. But the law is very flexible in this way, that it allows you to bottle anything from a quart down to a single drink. There can be no inconvenience in that either to the consumer or to the distiller himself.

Mr. GAINES, of West Virginia. I understand that the internal-revenue practice that prevents the distiller from rectifying his own product and putting it on as the pure product is to have their gaugers and storekeepers—and they shift those men pretty frequently?

Mr. TAYLOR. Yes, sir; in order to avoid collusion.

Mr. GAINES, of West Virginia. Now, who puts on the stamps declaring that the whisky was bottled in bond, made in the spring of such and such a year, and bottled in the spring of such and such a year?

Mr. TAYLOR. I will try to be brief. To begin with, the supervision begins from the grinding of the grain, and continues through all the stages until the distillation is accomplished and you are through with all the different operations. The distillate is gauged by a special revenue gauger and put into bond. It is locked up there by

another officer who has charge of the bonded warehouse, and the distiller has no key to that bonded warehouse.

Nobody can enter there except the Government official who has charge. If the distiller wants to bottle in bond, provided he has four-year-old whisky, which he must have to get the privilege, he applies to the collector of internal revenue of his district, and a certain other bonded warehouse is set aside for the sole purpose of bottling in bond. He then describes to his collector the ages and inspections that he is going to bottle, and the stamps are ordered from the Commissioner of Internal Revenue and are printed at the Bureau of Printing and Engraving and sent to the Government officer in charge of the warehouse. That Government officer must supervise every step of the transferring of the whisky from the barrel where aged into the bottle before he can affix that stamp, and he must check up every bottle as to the truthfulness of what the stamp shows about the whisky; he must not put a stamp reading "Four years old" on a whisky only three years old, and he must not put a stamp reading "Three years old" on a whisky that is four years old. The stamp must read correctly.

Mr. GAINES, of West Virginia. I could not buy some of those stamps to stick on bottles if I was a saloon keeper, for instance?

Mr. TAYLOR. No, sir; you could not. If it were possible, you would be subject to \$500 fine if you did that, and if you imitated the stamp you would be subject to \$5,000 fine.

Mr. ADAMSON. I have heard that a certain brand of whisky sold at a certain price, purporting to be the genuine brand, was cheaper than other dealers sold it, and a gentleman called attention to the discrepancy in price, and the proprietor of the house selling it at the higher price pulled out the cork and it had a wrapper on it, and he found some sort of a coupon or ticket under the stamp entitling him to a rebate on so many bottles. He was the gentleman who was charging \$1.50 a bottle, and the other man was selling it at a dollar, and yet they looked alike, and both professed to be bottled in bond, but the liquor did not appear as good.

Mr. TAYLOR. There are differences in liquor, you know.

Mr. ADAMSON. That was the same brand.

Mr. TAYLOR. The same brand?

Mr. ADAMSON. The same brand. And the bottles looked just alike. One man was charging \$1.50 a bottle, and the other man was charging \$1 a bottle, and the kind which was bringing \$1.50 a bottle had a return coupon in it that entitled you to so much for so many bottles.

Mr. TAYLOR. That was the more expensive one?

Mr. ADAMSON. Yes. Where was that put in?

Mr. TAYLOR. The Government did not participate in any such thing as that.

Mr. ADAMSON. But the Government would not interfere with anybody who said that he was going to put in such a thing?

Mr. TAYLOR. I do not suppose they would interfere with a thing of that kind.

Mr. ADAMSON. That did not indicate anything spurious about the liquor?

Mr. TAYLOR. Certainly not. The bottled-in-bond people can compete among themselves just like anybody else.

Mr. ADAMSON. So that your idea is that if any standard brand of liquor bottled in bond is ordered, it can be used with comparative safety?

Mr. TAYLOR. That is my idea. I think so, and I think that was the purpose of the bill.

The CHAIRMAN. Who puts the stamp on the bottle over the cork?

Mr. TAYLOR. The manual labor is actually done by the laborers. But the law is specific—the regulations are specific—that it shall be affixed under the supervision of the Government officer in charge, and he is held absolutely responsible.

The CHAIRMAN. Practically—in practice—does he attend to that?

Mr. TAYLOR. Sometimes he does and sometimes he does not—you mean the supervision?

The CHAIRMAN. Yes.

Mr. TAYLOR. Yes, sir; and in order to insist on this practice there are certain revenue officers who surprise these supervisors of the bottling warehouses by sudden visits, and if they are found outside, even off the threshold, while that whisky is being bottled, they are subject to expulsion. I have seen a case of that kind where that penalty was put into operation.

The CHAIRMAN. They are required to be present while the operation is going on?

Mr. TAYLOR. Yes. And to go back just a little, when the whisky is released from the bonded warehouse where it has aged, it must be gotten from the storekeeper, not by the bottling man, but by a special gauger, who gauges it under the authority of the internal revenue, who withdraws that barrel from bond, and that gauger must see that the barrel is transferred from the doors of the bonded warehouse where it has aged to the warehouse where it is to be bottled, and then the responsibility of the gauger ends.

Mr. RICHARDSON. Their duty is not to inquire into the purity of the liquor at all?

Mr. TAYLOR. I would say that it is, in this way, that you can not add a single thing to the distillate—

Mr. RICHARDSON. But had not the ingredients been put into the natural product?

Mr. TAYLOR. That is why the rectifier is casting so many aspersions on it. He can not get the stamp on his product. Even the distiller can not add anything. You can not put anything into bottled-in-bond whisky. You can not touch it from the time you start to make it until the stamp is put there.

Mr. RICHARDSON. I understood you to say that 95 per cent of the whisky on the American market to-day was a spurious article?

Mr. TAYLOR. Yes, sir.

Mr. RICHARDSON. How does it get in? Where does it get into the whisky? Who puts it in?

Mr. TAYLOR. The rectifier, operating over 600 feet away from the distillery, and who has no connection with the distiller. And that is a separate and distinct function altogether. He always represents himself as a distiller, but he has nothing to do with the distiller whatever.

Mr. ADAMSON. Then the only protection a man has, besides his own nose and taste, is this stamp "bottled in bond?"

Mr. TAYLOR. Yes, sir. Now, I want to show you where that law is

inadequate and should be supplemented by such a bill as the Hepburn bill.

Mr. ADAMSON. I would like to know about that.

Mr. RICHARDSON. Did not somebody say the other day that the label was nothing at all?

Mr. TAYLOR. Absolutely. He said that it was nothing but an excise stamp, and he has stated it repeatedly, over and over again, and he has referred to that again and again.

Mr. RICHARDSON. Do you agree to that?

Mr. TAYLOR. No, sir; I dispute it. And I have disputed it with him before, and he represented himself as familiar with the revenue laws when he introduced himself.

Mr. GAINES, of West Virginia. He said that the distiller might distill unwholesomely, and that stuff being bottled in bond, it might be bottled in bond. One distiller may put out a better whisky than another, but both might be bottled in bond.

Mr. TAYLOR. Yes, sir.

Mr. GAINES, of West Virginia. But he never said that it might be afterwards rectified or adulterated and then bottled in bond?

Mr. TAYLOR. No, sir; he simply stated that the excise stamp did not mean anything, and was never intended as a guaranty, and was simply an excise stamp that showed that the tax was paid. I dispute that.

Mr. GAINES, of West Virginia. But only because he contended that certain distillations were unwholesome in themselves?

Mr. TAYLOR. No, sir. He said it was not, perhaps, pure.

Mr. ADAMSON. He said it guaranteed that it was proof whisky.

Mr. TAYLOR. It guarantees that that whisky gets to the consumer in its original integrity; that nothing has been added to it except pure distilled water to reduce it to 100 proof, at which it went into bond. It tells you the age of the whisky, and the name of the distiller who made it. It tells you the number of the distillery in which it originated, and the internal-revenue district, and the State. It tells you the proof of the whisky; it tells you the quantity in the bottle. The words on the stamp tell you that it was bottled under the supervision of the United States Government in a bonded warehouse, and, under the provisions of that law, as I said, it guarantees that nothing at all has been added to it except that pure distilled water has been added to reduce it to 100 proof.

Mr. ADAMSON. But it does not guarantee how much of the real poison is in it?

Mr. TAYLOR. Yes, sir.

Mr. ADAMSON. That is what he said?

Mr. RICHARDSON. You live in Kentucky?

Mr. TAYLOR. Yes, sir.

Mr. RICHARDSON. You ought to know something about whisky.

Mr. TAYLOR. Yes, sir.

Mr. RICHARDSON. I do not want to ask you about anybody at all——

Mr. TAYLOR. No, sir.

Mr. RICHARDSON. But take some of these whiskies——

Mr. TAYLOR. Yes, sir.

Mr. RICHARDSON. Take this whisky—the Old Jordan, for instance. Do you know anything about that?

Mr. TAYLOR. Yes, sir; it is made by a distiller, and at a genuine distillery, and the majority of it is bottled in bond.

Mr. RICHARDSON. It is good whisky?

Mr. TAYLOR. Yes, sir; as good whisky as I know. Of course I do not want to advertise these people.

Mr. RICHARDSON. No; I am just asking you because I have heard gentlemen speak of it.

Mr. TAYLOR. That is a genuine product. But the majority of the whisky that goes out of the State of Kentucky is not a good whisky, and originates, nevertheless, in the very magic circle of Kentucky's fame.

Mr. RICHARDSON. The same is true of Old Pepper and Old Crow whisky?

Mr. TAYLOR. Yes, sir; both of those are genuine whiskies.

Mr. ADAMSON. I have no doubt that more people have drank these whiskies than will ever read your remarks before this committee, so that I think you are not advertising anybody.

Mr. TAYLOR. Yes.

The CHAIRMAN. When are these neutral spirits and the high wines, from which such alcohol is made, withdrawn from bond?

Mr. TAYLOR. Immediately. They are put on freight cars to-day and shipped to the back door of the refiner in Baltimore or Philadelphia or wherever the manufactory is, to any one of the famous whisky-producing places, and they go in the back door in the morning as neutral spirits and the next morning they come out of the front door as Kentucky or Maryland or Pennsylvania whisky. After they get in the bottles they are labeled like that; and the great Government of the United States, which is restricting the distiller and seeing that the integrity of his product is protected, allows these rectifiers to go ahead and do this thing until they have almost driven the distillers out of the business.

Mr. ESCH. Does this bill do any good in that direction?

Mr. TAYLOR. Yes, sir; it is a step in the right direction.

Mr. RICHARDSON. Could you suggest anything to make the restrictions more certain and more effectual on those rectifiers you speak of?

Mr. TAYLOR. I am not versed in legal matters at all, and I feel some temerity about making any suggestions as to a bill that meets my approval to begin with.

Mr. ADAMSON. You started to say something about wherein the pending bill would meet the difficulty as to the impure whisky.

Mr. TAYLOR. Yes, sir. While this bottled-in-bond act was passed for the protection of the public, and while it has that effect now in so far as it is understood and in so far as products are bottled under its provisions, there are very few distillers even who are bottling in bond and taking advantage of that guaranty of the Government, because the man who puts whisky under that stamp must tell the absolute truth about it.

Mr. ADAMSON. It costs him more?

Mr. TAYLOR. Yes; and the costs are there, and you can not avoid them.

Mr. ADAMSON. How will the Hepburn bill relieve that situation?

Mr. TAYLOR. I have before me a memorandum taken from the reports of the Commissioner of Internal Revenue, which shows the

proportion of so-called "whisky" on the market for each year from 1898 to 1904, and you will see why such a bill as the Hepburn bill is necessary in order to protect the public.

In 1898 62,000,000 gallons of so-called "whisky" was rectified under the privilege of section 3244 of the Federal Statutes, which permits spurious imitation, and only 535,000 gallons were bottled in bond; and yet to hear the bottled-in-bond—so called—interest spoken of you would think it was going to wipe these other fellows off the face of the earth; that all the bills that are being drafted by Congress are drafted at the instigation of this magnificent, prosperous interest.

In 1899 67,000,000 gallons were put up under this privilege to spuriously imitate and only 400,000 gallons were bottled in bond. They fell back.

Mr. ADAMSON. Do you say there is special Federal legislation that justifies that spurious imitation?

Mr. TAYLOR. There is a clause in the statutes that is responsible for this whole condition of affairs.

Mr. ADAMSON. Is not that an abuse of the law rather than a permission of the law?

Mr. TAYLOR. No, sir; it is a permission of the law, under which regulations are made by the Commissioner of Internal Revenue to provide for the easy accomplishment of this spurious imitation.

The CHAIRMAN. Will you read that section?

Mr. TAYLOR. Yes, sir; I will do so.

Mr. RICHARDSON. You have referred to that section since you have been talking this evening.

Mr. TAYLOR. Several times. I have it here in the regulations and instructions, which quote from the Federal statutes. This section 3244 was substantially in the original law of 1862, in so far as it permitted two things. It permitted then the rectification of these high wines in order to get the neutral spirits for the imitation, and it permitted the compounding and completing the imitation.

Now, along about 1868, right after the civil war, when they were adjusting the revenue laws, this specific permission was introduced into the statute, and that is what is responsible for all this:

Any person who rectifies, purifies, or refines distilled spirits or wines by any process other than as provided for on distillery premises, and every wholesale or retail liquor dealer who has in his possession any still or leach tub, or who keeps any other apparatus for the purpose of refining in any manner distilled spirits, and every person who without rectifying, purifying, or refining distilled spirits shall, by mixing such spirits, wine, or other liquor with any materials, manufacture any spurious, imitation, or compound liquors for sale under the name of whisky, brandy, gin, rum, wine, spirits, cordials, wine bitters, or any other name is to be regarded as a rectifier and as being engaged in the business of rectifying.

Mr. ADAMSON. That is for the purpose of taxation.

Mr. TAYLOR. That is the authority—

Mr. ADAMSON. I do not think that is any authority. It says if they do that they shall be classified as rectifiers.

Mr. TAYLOR. But unless he does that he does not pay the tax.

Mr. ADAMSON. But the Government does not then authorize him to do it.

Mr. TAYLOR. It does not force anybody into the business, of course.

Mr. ADAMSON. It leaves the law to deal with him if he commits a fraud.

Mr. TAYLOR. Yes, sir. Such a law as this Hepburn bill can correct any improper practices that he may indulge in under the authority of that section, as I understand it.

Mr. ADAMSON. I believe you said that you were not a lawyer?

Mr. TAYLOR. No, sir.

Mr. ADAMSON. I will not ask you, then, about that.

Mr. TAYLOR. Section 3244 reads:

"Every person engaged in rectifying spirits is required by section 3279 of the Revised Statutes to place and keep conspicuously on the outside of his rectifying establishment a sign exhibiting in plain and legible letters, not less than 3 inches in length, painted in oil colors or gilded, and of a proportionate width, the name of firm of the rectifier, with the words 'Rectifier of spirits.' " That sign you usually find in the rear of the establishment.

Now, in 1904, to still go on with that comparison, without enumerating all these bills, 104,000,000 gallons were rectified, and 1,000,000 gallons were bottled in bond. There is 1 per cent that is bottled in bond; and yet that 1 per cent, exercising a right under a national law devised for the purpose of protecting the public in so far as it might operate, are supposed to be a dominant interest for which a special bill like the Hepburn bill with the word "added" is particularly devised.

Going back to Mr. Hough's description of distillation on yesterday, I have here a pamphlet issued by the association which he represented, in which, after describing the same processes in a letter to Doctor Wiley, he concludes:

This goes to-day by the name of neutral spirits, but it is in fact rectified and refined whisky, unflavored and uncolored. All whisky, spirits, or alcohol, no matter what you call them, which has any color whatever is artificially colored.

and so forth.

Mr. ESCH. Then you would not strike out the word "added" in that clause?

Mr. TAYLOR. To strike out the word "added" would reduce that bill, so far as it applies to whisky, to an absurdity, because it would emasculate the operation of any clause pertaining to whisky in that it would prohibit the sale of any whisky, whether genuine or imitation, because the ethyl alcohol which is made the basis of the imitation, and the ethyl alcohol which is the chief component of the genuine whisky is itself toxic, as has been demonstrated by Professor Hunt, who is now Chief of the Division of Pharmacology. I have his pamphlet on the relative toxicity of alcohol and other ingredients in their natural state. And right there, the chemical purity of alcohol has nothing to do with its effect. Methyl alcohol can be reduced to alcohol which is chemically pure. The word "added," as it is in that bill, applies as much to other food products as it does to whisky. You take that out and there can be no more vinegar sold, because the acetic acid is in itself toxic. You can not sell spices; and there are other things that I can not think of now. This bill is drawn particularly in the interest of the consumer, so that the consumer has a right to judge on the face value of the articles he buys.

Mr. RICHARDSON. That bill is intended to prevent any false pretenses entirely.

Mr. TAYLOR. That is my idea exactly. Now, that brings me to another point. It has been asserted here that this bill does not apply to bottled-in-bond whisky. Bottled-in-bond whisky is only straight whisky which has been aged four years and happens to have been bottled by the distiller because he wanted to exercise that privilege. Genuine whisky is genuine whisky, whether it is bottled in bond or not.

While I am on that subject, I have heard the statement made here that whisky did not improve after it is put in glass. That is true, but when whisky is bottled in bond it has gone through the operation of being improved in the barrel before it is put in the glass, and that was why that was put in the law—that it had to be four years in the barrel before being bottled in bond.

On the other hand, the rectifier who takes his neutral spirits and treats it, puts it in the glass to-morrow. From the still they put it in glass right off; and without insisting on the correctness of my statement, I suppose that 80 per cent of the bottled whisky which we speak of, generically, as blended and rectified is bottled as soon as it is made by this imitation process.

The CHAIRMAN. Mr. Hough stated yesterday that substantially it would not improve it any to keep it in wood, because that kind of whisky did not improve with age.

Mr. TAYLOR. The rectified product would not improve in wood?

The CHAIRMAN. Yes; that is what he stated.

Mr. TAYLOR. No, sir; it would not. Just one more word about bottled-in-bond whisky. Here is one reason why the rectifier does not want anybody to understand what bottled in bond does mean. I went before the international pure-food congress at St. Louis and debated this subject with Mr. Hough, and, without regard to my efforts in the matter, the bottling-in-bond law was indorsed by the committee to which the subject of alcoholic beverages was relegated, and of which Doctor Wiley was a member at the time, as a means of protecting the public, and a recommendation was made that any further legislation be made that would further accomplish the purpose of protecting the public. Mr. Babbitt, of Louisville, the president of the wholesale liquor dealers' association, consisting of rectifiers, was over there with Mr. Hough, and at the close of the debate the following occurred:

Mr. BABBITT. I want to ask Mr. Hough one question. If the sale of whisky was confined to bottled-in-bond goods, which would require it to be 4 years old, how long would these whisky men be in business? I think there are about 9,000,000 gallons in Kentucky that is over 4 years old, and we use 26,000,000 gallons a year, and no more could be obtained for another year.

Mr. HOUGH. It is not necessary for me to answer that.

Mr. TAYLOR. Does the consumer care how long the whisky man is going to be in business when he is trying to get certain things and the whisky man is trying not to give them to him? Don't that very statement show you that there is a necessity of adulteration on his part, and that is to fool the consumer?

The reason why bottling in bond is not known more is because there is not enough genuine whisky to-day to be bottled in bond; there is not enough for it to be bottled in bond in such volume as to make it known. The whisky that is made, even by the genuine distiller, is withdrawn in such quantities before it ages that it is used by the rectifier as an ingredient in many cases.

Mr. RICHARDSON. What is the average sale of whisky in Kentucky; I mean all kinds?

Mr. TAYLOR. All kinds?

Mr. RICHARDSON. Yes; all kinds.

Mr. TAYLOR. It is estimated at about 60,000,000 gallons a year.

Mr. RICHARDSON. How much of that is real whisky?

Mr. TAYLOR. I suppose there is about 15,000,000 gallons of it which is real whisky.

Mr. RICHARDSON. And the balance is spurious?

Mr. TAYLOR. Yes, sir.

Mr. RICHARDSON. What is the average age of the whisky that is withdrawn?

Mr. TAYLOR. Taking the general average?

Mr. RICHARDSON. Yes.

Mr. TAYLOR. I would say two years old.

Mr. RICHARDSON. Is that spurious whisky, constituting three-fourths of the total amount produced, consumed in that State or shipped out of the State?

Mr. TAYLOR. It is shipped out of the State, because the Kentuckians are getting onto the situation themselves.

Mr. ADAMSON. They use the best whisky themselves?

Mr. TAYLOR. Yes, sir. They are learning something about it. The people of Pennsylvania know a lot about it, and the people of Maryland know a lot about it. It is in New York and San Francisco and New Orleans—the ports—the most remote places, that they get the bulk of it. Suppose you are a Kentuckian, when you are in those places you will find that there are whiskies there supposed to be the Kentucky whiskies that are never used in Kentucky. That, however, is a little contradictory of the fact that you mentioned three or four brands a little while ago all of which were genuine whiskies.

Mr. ADAMSON. And you say that 75,000,000 gallons can not be bottled in bond?

Mr. TAYLOR. It can not be. It is not up to the standard. It has never come from the whisky distillery. It has never been guarded as it aged in its integrity, and has never been bottled under supervision.

Mr. ADAMSON. Is it not a criterion to see whether you have got it bottled in bond?

Mr. TAYLOR. Yes, sir; and I feel so, and have a right to say so, even if I bottle in bond, and for this reason: There is nothing in the law to compel us to bottle in bond. We can take our whole product 300 feet away from our distillery and make more neutral spirits than anybody by simply paying a tax of \$300 a year to rectify. But we prefer selling whisky on its merits, and for that the age is required. That is another reason why this Hepburn bill is necessary to supplement it. It is voluntary.

Mr. ADAMSON. Do you expect to punish, under the Hepburn bill, the shipping and sale of liquor that the law itself allows to go out from the warehouses with the license paid?

Mr. TAYLOR. How is that?

Mr. ADAMSON. I say if that number of gallons is manufactured now, and the taxes paid, and it has gone out, do you expect the Government to follow that and punish for its sale in the various States?

Mr. TAYLOR. It makes no provision for it in the law, but they have done this; they do safeguard it to such an extent that they have recently even seized whisky bottled under their own supervision, because of an error on the part of the supervisor at the bottling house in allowing it to be reduced a few fractions of a per cent below 100. A number of distillers recently had that experience where the whisky was investigated after it went out. But that is simply along with the spirit of the law, and is not in the law.

It has been said that this bill does not apply to bottled-in-bond whisky—to genuine whisky. Why not? I understand it says that liquors shall be considered under the term "food." The first clause, in line 4, on page 6, says:

If any substance or substances has or have been mixed and packed with it so as to reduce or lower so as to thereby injuriously affect its quality or strength.

I do not see why genuine whisky is not responsible under that. If it meets that general condition it is.

Mr. RICHARDSON. Whisky is considered a food product?

Mr. TAYLOR. Yes, sir; and I say it is responsible under that law. It is not indulged by that clause. It is required to come up to that clause. It must come up to that clause. There is no other interpretation of it. It says, again:

Second. If any substance or substances has or have been substituted wholly or in part for the article.

That clause applies to it. Why should it be exempted from it?

Mr. RICHARDSON. That is why you say the bill is a step in the right direction?

Mr. TAYLOR. Yes, sir; it must come up to those requirements.

Mr. ESCH. That does not reach the rectifiers?

Mr. TAYLOR. Yes, sir; but of course they are not considered imitations if they are labeled under their own colors.

Mr. RICHARDSON. Have you not got some of Mr. Hough's advertisements there?

Mr. TAYLOR. Yes, sir; I have one here which is a very interesting one. I might read you all this clause and you would see all these sections apply to genuine whisky. And I say if it so happens that genuine whisky meets all those conditions I am not so very much surprised. That bottled-in-bond law was passed as and aimed to be a pure-food bill, and if we have something that meets one pure-food measure we need not be surprised if it meets the requirements of another.

We are told here by Mr. Hough that that is to its discredit. The bill covers all food products, and I am glad to see that it comes under it, as I understand it does. If it does not, if there is anything wrong with it, I understand that this bill has made provisions whereby the Department to which it places the responsibility for supervision and putting this law into effect and operation has certain powers delegated to it to require anything that is needed.

Now, here is an advertisement, anonymous.

Mr. ADAMSON. Anonymous?

Mr. TAYLOR. Anonymous, yes, sir; in which we are told that pure whisky is produced by rectification. I have tried to explain to you what rectification was. In this advertisement we are told that bottled-in-bond whisky is the most impure, and Doctor Wiley is quoted

as authority, and the other authority is Dr. Julius Hortvet, of Minnesota. I will not take your time in reading you much of this, but I have Doctor Hortvet's own repudiation of the statements that are ascribed to him.

Mr. RICHARDSON. Suppose you file that with the stenographer.

Mr. TAYLOR. Yes, sir; Doctor Muspratt is quoted, and I have read you what he says. In the first place, the whole thing has not the dignity of authoritative origin.

Mr. ADAMSON. Does it advertise blended whisky?

Mr. TAYLOR. Yes, sir; rectified whisky.

Mr. ADAMSON. Does it advertise any particular brand or brands?

Mr. TAYLOR. No, sir; just the general proposition. That same advertisement appeared in the Boston papers when the United States Food Standards Commission met there, and the inference might be that it was carried there for the purpose of influencing—

Mr. ADAMSON. Are you a chemist?

Mr. TAYLOR. No, sir. And the same thing is being carried in Chicago to-day, where the standards committee of the association of food chemists of the various States is meeting and considering various standards, and the same thing is carried here in the Washington papers where the Senate has up the Heyburn pure-food bill, and this committee is considering the Hepburn pure-food bill, quoting as their authorities men who are trying to explain what is the genuine difference between pure whisky and rectified whisky.

Mr. ESCH. Who inspired that ad., do you know?

Mr. TAYLOR. I have been told authoritatively, but I do not feel that I am privileged to say.

Doctor WILEY. Will you let me make one statement without putting me under oath, Mr. Chairman, in connection with that advertisement? I want to refer to a public document.

The CHAIRMAN. Certainly.

Doctor WILEY. I appeared before the House Committee on Agriculture and Mr. Hough was there and made this same statement, and I told the committee that that was a false advertisement, and I asked Mr. Hough if he would take out what is falsely attributed to me there, and he said, "If you want it taken out, pay for it; I paid for putting it in." Those were not the exact words, but that was the idea.

Mr. TAYLOR. Those advertisements are carried by a fund that is fighting pure-food legislation. I feel privileged to say that much. They are fighting the corrective legislation now in effect, and are fighting any prospective legislation intended to correct what is now the evil and to give the consumer a chance to get what he wants.

If you take the rectifier and discuss with him before any body of men the comparative values or qualities of the output of the distiller and that of the compounder, blender, or rectifier—all of which terms are synonymous—he will tell you in the course of the argument, as Mr. Hough said before the pure-food congress, that the rectified, blended, compounded article is superior to the distiller's output which has been aged, because this distiller's output which has been aged possesses certain secondary products which are obnoxious and deleterious; and when you say to him, "Then in the name of fair play won't you allow the privilege to be accorded to you to parade

the superiority of your product before the public by identifying it in such a way as to distinguish it and free it from any confusion with the output of the distiller which you decry; won't you accept that privilege." you will find there is always a reason why he does not want to do it.

Mr. Hough spoke yesterday of the extension of the bonded period. Gentlemen, I am not saying that the supervision of whisky, of genuine whisky, that is applied by the Internal-Revenue Department is not primarily for fiscal purposes; but I say that the machinery which it operates under the provisions of the revenue laws is of such a character that it enables the officers to give these guaranties. In the same way the bonded period was increased from one year to three years, and again from three years to eight, for fiscal purposes primarily. Mr. Hough said it was not because there was any need of aging the whisky. Gentlemen, it was because of a popular impression that whisky must be aged before it is potable that made it so difficult for the distiller to sell that whisky to the consumer in its original integrity when it was so young; that brought about the embarrassment under which he labored, and the rectifier who frequently relieved him of that by taking it off his hands and dumping it into the vat at the time was not sorry to see him in that situation and did not come to his relief.

The CHAIRMAN. In the process that they put the high wines through in order to get the ethyl alcohol is there any by-product?

Mr. TAYLOR. Left in the distillate, you mean?

The CHAIRMAN. No; I mean is there a by-product taken from it?

Mr. TAYLOR. Yes, sir. I am not so thoroughly acquainted with all the after steps, but I know this, that most of the artificial secondary products made at the chemical factories and used by the rectifiers to imitate the genuine secondary products originate from a fusel-oil source.

The CHAIRMAN. Have you any idea what the percentage of these by-products is?

Mr. TAYLOR. No, sir; I have not.

The CHAIRMAN. Here is the ethyl alcohol after that process has been gone through. Now, what percentage is that of the whole that was operated on or treated?

Mr. TAYLOR. I would not feel competent to make an accurate statement of that. I will say this, though, that I understand that most of it is used; that a good deal of the commercial fusel oil is gotten in that way.

The CHAIRMAN. Is that a valuable product of commerce?

Mr. TAYLOR. Yes, sir.

The CHAIRMAN. Is the ethyl alcohol of more or less value per gallon than the material from which it is extracted?

Mr. TAYLOR. The way it is used now it is of greater value.

The CHAIRMAN. Of greater value?

Mr. TAYLOR. Much greater value now, in the way it is used. I do not say how much greater value. But neutral spirit sells at about 13 cents at the still, before the tax is paid, which would make it about \$1.23 after the tax of \$1.10 is paid.

The CHAIRMAN. I do not think you get the meaning I have. What I wanted to know was this: As I understand you, there is in prepar-

ing ethyl alcohol, in securing ethyl alcohol, a by-product as the result of that process?

Mr. TAYLOR. Yes, sir.

The CHAIRMAN. In other words, you have two commodities instead of one—the ethyl alcohol, and then you have the other.

Mr. TAYLOR. Yes, sir; I see.

The CHAIRMAN. Now, you do not know what the percentage is of each?

Mr. TAYLOR. No, sir; I would not feel competent to state.

The CHAIRMAN. Nor the comparative value of the two?

Mr. TAYLOR. No, sir; I do not.

The CHAIRMAN. What is the liquor called that you sell from your distillery—if you do sell it—to the rectifier? What do you call that? High wines?

Mr. TAYLOR. No, sir; the whisky distillers do not make any high wines. They sell whisky to the rectifiers.

The CHAIRMAN. They sell whisky?

Mr. TAYLOR. Yes, sir. They do not make any high wines.

There are high-wines distillers who make high wines, but to a very small extent, and an inspection of the fiscal reports of the Commissioner of Internal Revenue will show that from the time the privilege was accorded for the high-wine distillers to carry out a fractional distillation so as to convert the high wines at these distilleries into the neutral spirits—from that time high wines as a product decreased in such proportions that whereas at that time it was produced in excess of neutral spirits, it gradually lessened and lessened until now there are only a few hundred thousand gallons of it produced a year, as against 60,000,000 to 70,000,000 gallons of neutral spirits produced.

Just one more thing here. I have here a little book on the analysis of potable spirits, written by S. A. Vasey, of London, of whom of course Doctor Wiley knows. He may know him. We hear so frequently England quoted to us as having made a precedent of blending which is worthy of imitation. In speaking of that Mr. Vasey says, speaking of neutral spirits:

Alcohol can be obtained from almost anything nowadays, even refuse of all kinds, and the patent still would seem to be capable of purifying it sufficiently to make it drinkable and suitable for blending purposes. The introduction of grain or neutral spirit was never demanded by the public taste; it was dictated solely and simply by economical motives. The time required for maturing genuine whisky is thus saved, and the practice of blending is carried to an enormous if not appalling extent, with handsome profits to the blenders. There is no control over the character or purity of the grain spirit used for this purpose. It may be made from any loathsome material, so long as it is capable of alcoholic fermentation. Clearly the public interest and health need guarding here, and there is every reason why that clause of the food and drugs act providing that an article should be of the nature, quality, and substance demanded by the purchaser should be enforced in the case of the sale of spirits.

Just one more thing about the situation over there, since it has been so frequently and generally quoted as a precedent. The Government in 1893 and 1894 was treated to an exposé of the blending methods used by the blenders of Great Britain by three or four members of the House, who began to question Mr. Austin Chamberlain on the attitude of the Government in regard to it. It was stated by these members of Parliament that blends were made consisting of 5,000 gallons of patent blending spirits from Germany—the same thing as

our neutral spirits—and blended with a number of barrels of Scotch whisky containing the natural products and chemicals introduced, and the whole thing sold to the public as genuine Scotch whisky. That was not cited as an unusual incident, but it was cited as a typical instance of the way this blending is done.

If I take even a barrel of genuine whisky that is eight years old and ten barrels of genuine whisky from our own distillery that is only three months old and blend those together—even when I am blending genuine whiskies and selling them all as blended whisky—I then run the chance of deceiving the public, and I may have saved a whole lot of money by that extension. But when I take genuine whisky and put neutral spirits in it, which supplies the alcoholic content and is an ideal filler, and supply the alcohol and treat it with chemicals the operation is patent.

The CHAIRMAN. What are the chemicals that are used that you have just referred to?

Mr. TAYLOR. The report by the subcommittee of the Committee on the Judiciary under the title of the "Whisky Trust Investigation" went into that matter thoroughly and gave a list of samples consisting of two or three pages.

The CHAIRMAN. That is our Judiciary Committee—the Judiciary Committee of this House?

Mr. TAYLOR. Yes, sir. That was in 1893, and Mr. Bynum, of Indiana, was chairman of that subcommittee; and the investigation was conducted under a resolution of Mr. Burrows, to see if rectifiers did pollute and drug their product. The conclusion was, as you can see by this report of that committee, that such things existed to such an alarming extent that the public ought to be protected in some way.

The CHAIRMAN. What is the number of that report?

Mr. TAYLOR. It is report No. 2601 of the Fifty-second Congress, second session, and is entitled "Whisky Trust Investigation."

The chemicals come in little vials of about an ounce, and I had occasion to appear before a committee of the Kentucky legislature, and I had these things and demonstrated about how imitation whiskies are made. You can take a barrel of neutral spirits consisting of 45 gallons, as I intimated before, and throw in a gallon of this Bourbon oil and mix it. Then you lack something. As Mr. Tillman said in the Senate yesterday, you lack a bead. That is supplied by another ounce vial which you throw in, and then you stir it and you have a bead for the whole 45 gallons.

Mr. TOWNSEND. Do they use these chemicals every time they blend whiskies?

Mr. TAYLOR. I would not say from personal experience that they do, but my impression is that they do, and that impression is founded primarily on the report of the Committee on the Judiciary, which is now in the chairman's hands, which draws that conclusion in the official report after that investigation that these things are practically used by all blenders.

But, as I stated a while ago, the blending of one whisky with another is not really the commercial practice to-day. "Blending" is a good deal of a misnomer, like "rectifying."

Mr. TOWNSEND. On a former hearing it was contended that this was what it meant—the mixing of two whiskies.

Mr. TAYLOR. That would be my idea of a real blending—the putting together of two whiskies—but the putting together of neutral spirits and whisky is not blending, and that does not make a blended whisky any more than the putting together of brandy and neutral spirits makes a blend of brandies.

(At 5 o'clock p. m. the committee adjourned until to-morrow, Wednesday, February 21, 1906, at 10.30 o'clock a. m.)

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Thursday morning, February 23, 1906.

Committee called to order at 10.20 a. m.

**STATEMENT OF THOS. E. LANNEN, ATTORNEY OF THE NATIONAL
FOOD MANUFACTURERS' ASSOCIATION—Continued.**

The CHAIRMAN (Mr. Hepburn). You may proceed, Mr. Lannen. We will give you thirty minutes within which to conclude.

Mr. LANNEN. Mr. Chairman, I want to call attention to a feature of this bill found in section 7, page 9, of the Rodenberg bill. Under that provision the right is given to the defendant to receive from the district attorney a copy of the analysis, which will be offered in evidence in the trial against him at any time after the prosecution has been started. The object of that is to advise the defendant fully of the offense of which he has been charged.

The CHAIRMAN. That is usually the purpose of the indictment, is it not?

Mr. LANNEN. It is, but this is different from an indictment, Mr. Chairman, in that in any indictment we have specific criminal laws defining accurately what a crime is; and in this food law we have nothing defining what is specifically below standard or above standard. We have no definite statute to go by, and the defendant is merely charged with delivering the product; he does not know how, and he does not know in what way he has done it or anything connected with it. It has been a principle of law that has been recognized from time immemorial that the plaintiff must make his cause of action specific, and the defendant must be advised fully of the offense with which he is charged; and if he is not, and if the proof in the case does not conform to the analysis, then it is not a good case, and the court will take it away from the jury. Gentlemen, that is not a new feature; it has been recognized in England for a number of years, and I will read just a short section of the English law on that subject—

The CHAIRMAN. We do not care about that.

Mr. LANNEN. I want to state that the English food law requires that a copy of the analysis be served with the summons, and that the summons state itself the particulars of the offense. Under the different State food laws now the defendant does not know what is going to be charged against him until he comes into the trial of the case. He has to wait until the plaintiff puts on his case and then must come in and defend himself.

Mr. WANGER. What object can there be in having that provision

adopted? You have a further provision that the analysis shall be deemed to be correct and undisputed unless for a certain period of time prior to the next term of court or within a certain period of time after binding over the defendant shall file an affidavit giving the analyses of the separate chemists that he has had analyze the sample, and then there may be a further analysis.

Mr. LANNEN. I don't think there would be any objection to that. I think that would be fair if the defendant should be required to do the same as the Government, provided you should make the time long enough to give the defendant a chance to have the sample analyzed and determine whether he wanted to make a defense or not. I think that would be a fair provision.

Now, there is a provision here also, in section 4, on page 7, at the end of the section, requiring that all prosecution shall be started within sixty days from the date of the taking of the sample. That gives the Government plenty of time to have the sample analyzed. The law of England requires that prosecutions must be started within twenty-eight days, and the reasons for that are obvious, especially in a food law of this kind, because I know of cases in States where samples have been taken and actions have been brought two years after the sample was taken and analyzed; the defendant had lost all track of the matter, did not know what factory had sent the goods, did not know where it was put up, or who sold it, or anything, and did not know who he had sold it to. Large firms are manufacturing great quantities of food, and it is necessary that these cases shall be tried sooner, or within a reasonable time, in order that they may look up the record of that sample as far as possible, and because the facts will be fresh in the minds of all.

Mr. ADAMSON. There are no such short periods of limitation in any other United States criminal statutes—sixty days—within which the prosecution shall be started. It is an unusual period of limitation to place upon the Government.

Mr. LANNEN. It is a principle of law in this country that a criminal case shall be started within a certain time, and I believe there are statutes of limitation on that.

Mr. ADAMSON. Limiting the Government to sixty days?

Mr. LANNEN. Not to sixty days; no. Understand me, I am talking about the principle of the thing now.

The CHAIRMAN. Why would you make an exception of this kind of a criminal? If you can indict a murderer fifty years after the commission of his crime, why not indict this man within a reasonable time? It is usually from three to five years in the different States, as to limitations.

Mr. LANNEN. I will answer that question by asking another one. If you can indict a murderer within fifty years or one hundred years or while he lives in this country, why can you not indict a man who commits larceny within fifty years?

The CHAIRMAN. You can within three years in most of the States.

Mr. LANNEN. But why do you place a limit on it?

The CHAIRMAN. A reasonable limit, three years.

Mr. LANNEN. But the point I am making is that there is a difference between crimes.

The CHAIRMAN. I do not see why you make such a marked discrimination in cases of criminals like this. In cases of murder where it is

by poison the State is not required by any statute that I have any knowledge of to furnish an analysis of the stomach. Why do you discriminate in favor of these men?

Mr. LANNEN. Because, Mr. Chairman, murder has been specifically defined by the statute, and if you will tell us in your food law exactly when a man commits an offense and when he does not commit an offense—

Mr. ADAMSON. I don't remember any limitation upon a misdemeanor under two years.

Mr. LANNEN. Well, I don't think there is any limitation under two years, but I think some limitation should be placed upon proceeding in this particular phase of the question, where a man has manufactured so much food, and he should look it up and find out when he took those goods and put them out. He might have put those goods out before the law went into effect, as is the case in many States.

Mr. RUSSELL. If this bill should be drawn as I understand you to contend now, a man can tell from reading it when he commits an offense. Wouldn't that in some form be construed as unconstitutional in the sense—

Mr. LANNEN. I see what you mean, and I want to say that on yesterday afternoon on the floor of the Senate of the United States that that was the opinion of many Senators who expressed themselves there. I contend that that is so.

Mr. BARTLETT. As I understand your position, I don't think it is fair to put it in the way in which it has been put. Your position about the limitation is that the manufacturer or the merchant does not know until this analysis is made by the Bureau here that he has violated the law, and for that reason you think that the time ought to be short.

Mr. LANNEN. That is right; that is the reason.

Mr. BARTLETT. In other words, it is not like crimes that are *malum in se*, what we call *malum prohibitum*, to discover by analysis of the Government—by the board of standards, if you have one; and if you have committed a crime you ought to have a little different—

Mr. ADAMSON. You don't know that he has committed a crime until after the analysis has been made. You put a man in the position of committing a crime that he does not know anything about.

Mr. LANNEN. I say right now that there is not a manufacturer in the United States that can understand the meaning of this bill in all its phases, and can tell how he is going to conduct a legitimate business upon it until some party makes some ruling upon it. Now that is a wrong principle, because we all recognize that in cases where there is doubt as to the meaning of the law, the right to construe the law amounts to the making of the law.

Mr. Chairman, I would ask to have the section of the English law incorporated in the record, if you will permit.

The CHAIRMAN. You may do so.

ENGLISH SALE OF FOOD AND DRUGS ACT, 1899.

[Law Reports 62 and 63 Vict. Stats. 36-37, 1899.]

Page 200, section 19, paragraph 2: In any prosecutions under the sale of food and drugs act the summons shall state particulars of the offense or offenses alleged, and also the name of the prosecutor, and shall not be made returnable

in less time than fourteen days from the day on which it is served, and there must be served therewith a copy of any analyst's certificate obtained on behalf of the prosecutor.

Mr. LANNEN. I would like to call attention to section 9, on page 10, of the Rodenberg bill. That section gives the Secretary of Commerce and Labor the right to publish the analysis of the food which he has analyzed, but it does not give him the right to analyze or to publish the result of the analysis of the food that he has found to be pure, because taking the thing on general principles, regardless of the effect of the enforcement of the law, he would open up a field for that party if he wanted to be dishonest in any way, of advertising the goods of some manufacturers over the goods of other manufacturers, advertise them as pure, and thereby place the approval of the United States Government on certain brands of foods.

Mr. ADAMSON. Suppose all are treated alike in that respect, suppose that all of them could get a certificate, there would be no discrimination there.

Mr. LANNEN. There would be no discrimination there, but it is the principle of the thing that we are fighting against, not against the law, not against the object; but in the way in which you are going to carry out this law. That is our contention here. It is the principle, not against the men who are going to enforce the law, but the general principle.

Mr. ADAMSON. Don't you think it would really be a good thing for the country, undoubtedly for the law, if you would provide a competent board of chemists and let them do the analyzing with regard to the purity of the goods.

Mr. LANNEN. No, sir; because I could not go in the business and compete with these fellows. I would have to go before the court and get them to certify to my goods before I could compete successfully.

Mr. ADAMSON. You may have the same trouble under this section.

Mr. LANNEN. This section says, let them alone. If they are pure, all right; let them alone. This is a law to punish the adulteration of food, it is not a law to advertise pure food. That is not the intention of the law.

The CHAIRMAN. What particular argument have you to make in favor of this: That the examinations or analyses or the results of the examinations or analyses of the article of food or drugs found to be adulterated or misbranded under the meaning of the law, etc.?

Now, is that a probability, that when the officers discover in the ordinary business that they are engaged in that a particular crime has been performed, that that shall not be given to the public until after the fellow who has committed the crime has been formally convicted? That is the meaning of the section. Now, why do you want to do that?

Mr. LANNEN. The object of that, Mr. Chairman, is this: That every man is entitled to his day in court, and that a man's character and the character of a man's goods are just as much his property as is his life or his liberty, under the Constitution of the United States. And that a man has a right to a trial in a court of justice before he is injured by any public official. And, moreover, if you permit an officer enforcing a food law, as the State food commissioners are doing now, to determine facts and interpret laws, then there is not any use in maintaining a judicial department of this Government.

The CHAIRMAN. You think, then, that it is probable that the officers of the Government will enter into some kind of a conspiracy of fraud against somebody to harm them?

Mr. LANNEN. The officers of the Government are not trained to administer justice; that is not their business. We have a judicial department in this country, with men who are trained for years and years, who have studied the best books of the ages for the purpose of determining the rights and wrongs of its citizens. Officers enforcing the law who are not judges, who are not attorneys, are not trained and are not competent to pass upon matters of that kind.

The CHAIRMAN. A chemist is competent to pass upon a question of chemistry, is he not, and publish the facts in connection with it?

Mr. LANNEN. Well, but he should not be permitted to say that that is right and not give me, who is going to be injured, the right to dispute him. Why should he be allowed to say that he has found poison in my food and go out and say that my food contains that poison and not give me a right to deny it? Why should he be given the power to go out and say that my food is adulterated and poisonous, telling the people, the public, not to buy it, when, if I was given interpretation of this law. Now, you want him first to say that he was wrong? And, moreover, I might show that he was right, but nevertheless that the substance was not prohibited under a proper interpretation of this law. Now, you want him first to say that he has such a right, and not give me the right to dispute him. Secondly, you want to give him the right to interpret this law instead of the courts, and say that under the provisions of this law an article is adulterated, and go out and ruin me. He does not want any more power than that to resort to the public press of this country to drive a man out of business.

Mr. ADAMSON. You don't expect the officer before he suspects, and every time he buys a package, to have the analysis made. Is he simply going around buying packages and trying to see that they are impure?

Mr. LANNEN. We have had in this country to-day, and we have had for centuries, a grand-jury system, and if there is a lawyer on this committee I want to ask him what the province of that grand-jury system is. Is it not for the purpose of determining, of looking officially into, charges that are made against men of a criminal nature? And I would like to ask, further, if that does not place a stigma on the character of a man as long as he lives? Is it not, for the purpose of looking into those charges officially? They do that behind closed doors, take up the offense and determine whether there is any probable reason for having charged that man. But do we not all know—

Mr. ADAMSON. They turn it into a court.

Mr. LANNEN. Yes. How many times do they not turn it into a court; how many times is it that the world does not know of the charges made against reputable citizens?

Mr. ADAMSON. If you do not intend every time you buy a package that you suspect the man's guilt, but simply do that as a precautionary measure to the community, I can understand some reason for your provision there. But if you do suspect, if there is a reasonable doubt that he is selling poisonous goods to his customers, don't you think you have reason enough—that he ought to be stopped right there from doing any further injury?

Mr. LANNEN. Are you going to take his property away from him without due process of law?

Mr. ADAMSON. You can give it back to him.

Mr. LANNEN. When are you going to determine that, and who is going to determine that—the officers of the law? You have asked me a question, and I would like to have you answer that question.

Mr. ADAMSON. I am not running this bill.

Mr. ESCH. In that clause you say that the public analysis shall not be made until the matter is finally adjudicated. That would take three or four years before you could get it to the Supreme Court of the United States, would it not? And in the meantime, of course, the article could be put upon the market.

Mr. LANNEN. Every sale constitutes a separate offense, and you can bring your case against a man every time he commits that offense. Suppose that I am charged with larceny to-day; I can go into court and give a bond and go out and commit larceny again, can I not?

Mr. ESCH. Oh, yes; so can this party sell his goods, and the public is not protected in the meantime.

Mr. LANNEN. Is the public protected against a man committing larceny? Why do you not put the man in jail and keep him there until the case is tried, and why give him any chance to go out on bail? You are going to drive him out of business, stop him absolutely, and not let him live until the time comes——

Mr. ADAMSON. Yes; stop him from poisoning the balance of the world.

Mr. LANNEN. You are getting away from the principle on which this Government was founded.

Mr. ADAMSON. You have it in that bill; I am talking about the ridiculous details of your own bill.

Mr. LANNEN. I don't think they are ridiculous. That is not the principle upon which this Government has been founded—to promote justice and the general welfare of the citizens of this country. If you are going to depart here and now from those principles, well and good. We are stating a well-recognized principle of law and nothing else. It is all very well to talk about the adulteration of food and the stopping of it; that is what we all want to do, but how are you going to do it? If you are going to resort to bills of attainder or ex post facto laws, laws which I have no doubt in a very short time will stop every man in the United States from manufacturing—if you want to do that, well and good. But you want to stop this adulteration, and is that any reason why we should depart from the recognized principles of promoting justice and enforcing the laws and exacting punishment in a proper way?

Why did you not take the man who assassinated President McKinley, take him out and string him up without trial? Everybody knew that he was guilty, and what was the use of going through the formality of a trial with that man? I want to say to you that if that man had come into court under the recognized rules of administering justice in this country, under the rules of evidence, under the rules of law, and if that man had been able to go free from that crime, I would have been one of the first men in this country to say let him go, and I think just as much of my country as any man on this committee. I love my country just as dearly as anybody, but if you depart from the recognized principles of justice you will, in order to

punish one guilty party, have to punish five, ten, or one hundred innocent parties, and the technical points of law that men say save murderers from punishment in one case may be the only things that will protect innocent men in one hundred cases. You can not have a law that will fit one particular phase of this matter unless you make the law general and stick to it.

Mr. ADAMSON. If you are trying to make a law for the benefit of the defendant, I think you are wasting time. They will take care of themselves.

Mr. LANNEN. We are trying to make a law so that the Government will enforce food laws the same as they enforce laws in other parts of the country. The indictment of the twenty-three men sitting on a grand jury says that they do hereby charge that that man is a murderer, is guilty of the offense, and they turn him over to the trial jury to be tried and to find out whether that is correct or not. What do the food commissioners say? They say that this food is illegal, that this food is adulterated. They do not say that they charge that it is adulterated. They say that it is illegal and adulterated food; they give the name, the brand, and the manufacturer. We say that when the court has passed upon it, when they have proved that offense, after giving the defendant the right to come in and show that they are wrong, and when the jury has acquitted him, then I say they can publish the facts. Now, Mr. Chairman, have I answered that question?

The CHAIRMAN. Not satisfactorily to me. You probably can not.

Mr. ADAMSON. I concur with the chairman.

Mr. LANNEN. Well, if you are going to allow the officials to construe the law, very well, but I think the public should understand that.

Mr. ESCH. You have probably noticed that the Attorney-General has ordered the Secretary of Agriculture to publish a list of those who furnished adulterated seed.

Mr. ADAMSON. The Post-Office Department does not hesitate to publish fraud orders in certain cases.

Mr. LANNEN. I believe that that is wrong, and I say that it will not be but a short time before the Post-Office Department will be made to conform to better rules in promoting justice.

Mr. ADAMSON. If you are going into this thing, I want you to make it effective.

Mr. LANNEN. Now, Mr. Chairman, there is another point here, and that is in regard to the use of preservatives. I believe that the chairman asked me yesterday if it was not our sole object in coming down here to fight for preservatives. That was not our sole object, but that is our main object at the present time, to come down here and ask this committee to settle this question one way or the other. If the food manufacturers of this country are going to be allowed to use preservatives, then say so in the bill. If they are not going to be allowed to use them, come out and say so and state that they shall not use them. I think the testimony before this committee shows that it is a necessity, and the food manufacturers of this country want it settled one way or the other. We can not tell to-day what we can use nor what we can not use.

You say we can not use anything poisonous or injurious without stating what you mean by "poisonous" or "injurious" to health. It

leaves it to the man enforcing the law. If you will give us any standard to go by in any way in the bill, then we can understand the meaning of the law. We have come out here and raised the issue fairly and squarely. We are not ashamed of it. The chemical manufacturers of this country—a great many of them, I don't know just how many, eight or ten, I should think—are members of this association. They believe they have rights; they believe these chemicals are harmless in the quantity in which they are used in food. We believe that the chemicals are harmless. You have had testimony that the application of soda sulphite—I will say in regard to that that some of the best chemists in the world have testified on that. Mention has been made of the amount of sodium sulphite in Hamburger steak, 6 grains to the pound, or something like that. I want to say that the medicinal dose is 60 grains three times a day, or 180 grains a day.

Now, I have been engaged in the trial of some of the biggest cases that have been tried in this country on that question, and I have heard some of the scientists testify, and, while I am not an expert myself, I can say what their testimony was, and that was that it was harmless. Dr. Oscar Levi testified under oath—and he is to-day recognized as one of the greatest living scientists—to that effect. I believe the statement I gave of 60 grains was set forth in the United States Dispensatory. That is given in cases of bloody urine and Bright's disease and yeasty fermentation, and with beneficial results. I have heard Doctor Hare, who is one of the greatest authorities on the stomach, testify that sodium sulphite is used in very large doses and was absolutely harmless. He went so far as to say that he did not believe you could get a man to take enough, unless you put a test tube down his throat and poked it down into his stomach, to hurt him, and that in the ordinary course you could not hurt him. Doctor Hare is a recognized authority. I wish to say that the experiments that have been made show that it is absolutely harmless. Take the case of borax. The English Government, after a most thorough investigation, allowed the use of borax, and they are using it to-day.

Now, we have raised the issue fairly, and we have asked for the use of preservatives. If we can not do better than that we would like to have the right to use it as suggested here. We would like to have it stated specifically, so that the manufacturers will not be pounced upon as to what is wholesome and what is not wholesome. We have asked that when a man uses preservatives he will plainly state so on the label, plainly state any substance used for legitimate purposes on the label. We would limit that, and say that the name of any substance added to food shall be plainly stated on the label of said article, together with a statement of the purpose or purposes for which said substance is added to such article and provided said substance be applicable for the purpose for which it is added to such article and not fraudulently added to increase the bulk, weight, or measure of the article. That will prohibit a man from putting timothy seed in the food as has been charged on the floor of the Senate by the Senator from North Dakota. He said that you could put timothy seed in food, in any kind of food. That is not true under the provisions of this act. The putting of timothy seed in food would not serve any legitimate purpose. You would have to state on the label the name and the purpose for which it is put in.

There is a provision here which says: "That in stating the name of any added substance it shall be in compliance herewith, if the trade name only of any proprietary preparation which has been added to food is plainly stated on the label of such article, if said trade name of said proprietary preparation, together with the formula of said preparation, has been placed on file with the Secretary of Commerce and Labor."

Mr. ESCH. Does it not remain an inviolate secret while so filed?

Mr. LANNEN. Yes; and that he shall hold it as a secret document in his Department and shall not disclose the same except in so far as is necessary to enforce the provisions of this act. That gives notice of what is contained in the preparation, and he can through that protect the public health in that way.

I want to call attention to this fact that that does not give you the right, as has been charged against this bill, to put any old substance together and call it a proprietary preparation and give it a trade name. I believe the courts of this country have determined with some degree of accuracy, at least, as to what is a proprietary preparation. I do not believe that you can throw sand and timothy seed together and sugar and say that you have a proprietary preparation and give it a trade name and use it in food. Now the United States Government issues a patent for a proprietary preparation, and says that a man has a right under those circumstances that you are going to ignore. If you are going to ignore what the United States Government determines as a right which a citizen has, very well and good.

If a man has a preparation like Lea & Perrins's sauce which he wants to advertise and sell as food, do you want him to state the name on the label, and are you going to make him state the name of every ingredient in that sauce? That is the proposition you are up against; that is what you shall decide. We are not asking here for the right to put any old substance together and place it before the public by giving it a trade name. That is not a proprietary preparation; anything you want to mix up is not a proprietary preparation.

Now, there is one other point, and that is what shall be deemed to be an adulterated article. That is in paragraph 4 of section 11, on page 11. It reads:

If it contains any substance or ingredient, whether added or otherwise, which, in any quantity in which it might reasonably or advantageously be used in food or drink, will injure health, or contains any substance or ingredient which, by chemical combination or otherwise, renders such article of food unwholesome or injurious to the health of the consumer.

Now, that places the issue upon whether you can use any substance in food or not if that substance will injure you in the quantity in which you may use it in the food. It does not confine us in the quantity in which it is in the food, but it is, in a sense, in the nature of the article, because in the trial of the case you can show that one-half of 1 per cent of borax can be used in food advantageously, and that is about the amount that might reasonably be used in food; it would not be 1 per cent—it might be in a specific case—anyhow, the question is whether the article could be used reasonably in a certain quantity in food and whether that quantity would injure health or not. Now, you take the case of strychnine, and you say that strychnine can not be used in food advantageously or reasonably. It would injure health, and that would exclude strychnine altogether.

You would not have to go in court and prove that strychnine was injurious to health, and we make the issue as to whether the quantity of preservative that is used in the food or might be used in the food will injure health.

Now we go in and give the Government the right to prove that the article is injurious to health by virtue of having something in there, and the Government can prove that the article of food is unwholesome and not that the substance is injurious to health; because, as has been stated before this committee, any substance is injurious to health if you take enough of it. When the commissioners come in court to prove that there are poisons in the food—for instance, sodium sulphite—they don't prove that the 6 grains in a pound of meat would injure anybody, but that if you take 100 grains it will hurt you or that 150 grains will hurt you. But you have used a poisonous ingredient and you have committed an offense under the law. That is the condition of affairs that the Hepburn bill will leave things in. It is not right; you should limit it to the amount that is used in the food, or, in other words, limit it to the amount that might reasonably be used in the food and accomplish that purpose, simply accomplish the purpose of preserving the food.

Mr. ESCH. Your objection is to this section of the Hepburn bill where the language is used, "That contain any added poisonous ingredients which may render such article injurious to health?"

Mr. LANNEN. "Any added poisonous ingredient." That means any ingredient. That means the oil of mustard; that means acetic acid; that means vinegar; they are all poisonous ingredients. That is why I said yesterday that I could not defend a food case successfully, and I can not, because the food commissioner will come in here and put Doctor Wiley on the stand, or some other chemist, and he will prove that oil of mustard is a poisonous ingredient. They are all chemicals. He will prove that salt is a poisonous ingredient. Salt is poisonous, and there are cases on record where salt has been known to kill. That is something you should not leave here to the power of one man. It is too broad. The food commissioner enforcing this law can punish any man for using almost anything.

Now, we also take exception to that word "added." You will remember the discussion about whisky here the other day. Now, if I understand this argument aright, if I understand the whisky subject right, if a distiller of straight whisky puts up a bottle of whisky right straight from the still, that contains enough poison to kill a man absolutely, and if it does kill the man, you can not punish him under the Hepburn bill. How are you going to do that? He has not added anything poisonous to it at all. Supposing he does not want to bottle it in bond, suppose he does not want to keep it for four years, and suppose he makes straight whisky and sells it and it hurts somebody. He has not committed any offense under the Hepburn bill, and if there is anybody who can tell me that he has I would like to hear it. He puts in 5 grains of fusel oil; that is in there naturally—not in sufficient quantity to kill a man—and, as I said before, it does not kill a man, but you can punish him under this bill.

Why do you make an exception, and why don't you say, "If it contains any poisonous ingredient at all?" The reason is because it is necessary for these gentlemen here who are contending that we should not use preservatives—it is necessary for them to get back to our very

argument to protect themselves. They say all substances are poisonous. They say you should not be given the right to punish a man that uses straight whisky because it contains the poison. They refuse to recognize the quantity. If they are to recognize the quantity, then they would be protected the same as the rest of us. If they would say the poison in sufficient quantity to injure anybody, they should not complain of that. Why don't you put "proportion" in here instead of using the word "added," or say "Any poisonous ingredient in sufficient quantity to injure anybody?" That seems to me to be a fair proposition.

Why do you want to leave it in the position that a man who puts out straight whisky can kill a man and not give us the right to use a preservative that will not injure anybody at all? And the only objection you urge against our request is that we want to add it. We don't want to add any poison to food; all we want to do is to preserve the food.

Mr. ESCH. Does that condition obtain as to any other food products where the poisonous substance is in the product itself, as in the case of whisky?

Mr. LANNEN. Why, yes; I believe that I am correct in stating that mostly all the fruits that grow west of the Missouri River contain borax on account of the alkalinity of the soil. I believe I am correct in saying that the witnesses who testified here before this committee testified that all fruit, or a great many fruits, and many other substances, contain these things which we designate as poisonous. They contain salicylic acid naturally, they contain benzoic acid naturally; even foods contain arsenic and things of that kind.

Mr. ESCH. Those are products of nature which are consumable without further preparation.

Mr. LANNEN. They are consumable without further preparation, but that does not alter the case as to whether they are going to injure you or not. You are passing a law to protect the public health.

Mr. ADAMSON. While you protect the public health your manufacturing associations are expected also to extend their trade by preventing local hindrances.

Mr. LANNEN. We are asking for what we believe to be right in the law. We are asking for the use of preservatives. If you gentlemen are going to turn us down, very well.

Mr. ADAMSON. I understand you are favoring this legislation—some of the bills. If you do not get this bill, you want some other bill, don't you?

Mr. LANNEN. Why, yes; but we do not want a bill that is going to injure us, and injure us unjustly. That is the reason we are opposing the Hepburn bill. We are not opposing the spirit of the law, because I assure you, gentlemen, that the men I represent to-day are legitimate manufacturers. Will you gentlemen tell me why we are charged with these things; why every retail grocer in the United States, every wholesale grocer, every packer of meats, the manufacturers of soda-water supplies, and almost every man who produces or distributes food to-day is a criminal under the food laws and is conducting a criminal business—is charged with being a criminal?

Mr. ADAMSON. Do you say that it is the manufacturers who claim to be honest manufacturers who do not believe that a law of this sort will protect and improve and extend their business?

Mr. LANNEN. Not a law like the Hepburn bill or the Heyburn bill.

Mr. ADAMSON. But you think the Rodenberg bill would?

Mr. LANNEN. I think the Rodenberg bill would. It would enable them to conduct their business, and will accomplish the same purpose that you are trying to accomplish by the Hepburn bill. If you will notice our article of membership, you will see that we want a food law that will protect the public and conserve the rights and legitimate interests of manufacturers. If we have any rights, we want them conserved. We don't want them taken away from us. We can not fight the food law. Why is it that all these manufacturers in the United States are accused of being criminals? Why is it that you can not put a finger on a man hardly but who under some of the State food laws is conducting a criminal business? Why should it be that because a man is engaged in the manufacture of foods that he is a criminal? Are those men any more criminally inclined by nature than any other class of men? Is there anything radically wrong with that particular class of individuals, something radically wrong with their morals, their moral intentions?

There must be, or else there is something radically wrong with the food laws. We contend that these adulterated foods that are sold throughout the United States are simply adulterated because the laws have made it so; that it is merely unwholesome because the laws have declared it unwholesome, but not so in fact. Foods that contain preservatives to-day have been designated as adulterated, and it leaves a field here for the commissioners to come out and say that they are. There are millions and millions of pounds of food, and millions of dollars' worth of food sold throughout the United States, and it is said that it is adulterated. Now, what is wrong with it? Is it adulterated? It contains a little preservative; that is all. If you allow the use of that preservative, it will not be adulterated food; it will be legitimate food.

Mr. BARTLETT. Some have mentioned sugar.

Mr. LANNEN. Yes, sugar; that is an adulteration pure and simple. If you will take up this Rodenberg bill and show me under it where it is possible for a man to adulterate food, unless you say it is wrong to put a preservative in it; if you will show me where it is possible for a man to conduct an illegitimate business under it, then you will be able to show me something that no other man has shown me. The way our bill is drawn makes it stricter than the Hepburn bill or the Heyburn bill. It is our business to be strict. We want our people to toe the line as much as we toe the line. It would not do to have a wishy-washy food law, to say that one man may conduct a certain kind of business and another man can conduct a certain kind of business.

There is another provision in here that I want to refer to, and then I will finish. The Rodenberg bill states, in section 13, on page 15: "That this act shall not be construed by any specific standards for food not incorporated herein," and so on. Now, the object of that may not be plain to you, gentlemen. It was necessary first to put that in there in case we did not want food standards, because I can see right now that no food law will be effective until we have food standards by which to interpret that law. But for the reason that the United States Food Standard Commission has been establishing standards for a number of years past that are not acceptable

to food manufacturers of the United States in many respects, and that the food manufacturers complain that they have not had a proper representation on this commission, and that it has been compelled to go before several food-standard commissions without having a vote, and that they have not had proper consideration extended to them and to their arguments—that they do not want those food standards foisted upon them.

I want to say to you right now that I think I can prove by judicial decisions that those standards will be foisted upon the American people if the Hepburn bill passes and contains a provision of this kind; and I will tell you why. Because the United States food standards are the only standards in the United States to-day on this subject, and if they are the standards that have been authorized by Congress to be enacted the moment a food law goes into effect, then when a court looks for any evidence as to whether an article is up to standard or below standard they will naturally turn to the United States food standard and recognize it. Once they have been recognized by judicial decision they will be a part and parcel of the food law just as much as if it had been incorporated in the law itself. In Michigan they have a food law which is almost identical with the Hepburn bill, which did not contain a standard. The question came up to them as to what constituted lemon extract.

The courts of Michigan said that as the legislature had not covered that point when they passed this law that they found the United States Pharmacopœia was the only recognized standard on lemon extract in the United States, and they said for the purposes of this case we will hold that the legislature in passing this law intended that the United States Pharmacopœia, which is a private publication, should be the standard under which this law would operate. That case was taken up to the supreme court of Michigan, and they held that the United States Pharmacopœia was the standard for that law, and although it was not written in the law they recognized it by judicial decision. They will do the same thing under the United States food standards, and the first case that comes up will be decided in that way. If you do not want those standards adopted, you shall have to say so just as we have done or make some other provision against it. If you put a provision of that kind in there that will require that those standards be submitted to this committee in the form of amendments to the bill, then the food manufacturers of the country can come before their Congressmen and the Senators, the representatives they have elected to represent them here, and have a fair and impartial hearing on this question.

Now, it appears here that the chemists of the Agricultural Department—and they are arbitrarily empowered by this—that they shall consult with other experts in determining the standards. Now, he has not seen fit to consult with other experts—that is, he has not seen fit to appoint other experts on that board who had the vote in fixing the standards, as I understand it. I may be mistaken on that. I don't know whether all these gentlemen here who are appointed are members of that committee or not, but I do know that these gentlemen here are chemists, agricultural chemists, and I do know that the food manufacturers of the country who represent an annual output of \$8,000,000,000 worth of food are not represented on that committee, and had no voice and no vote in the matter. It is very

well for me to come here to this committee and talk; it is very well for me to come before the United States Food Standards Committee and talk, but when I have no vote then I have no voice in the decisions.

I think we are entitled to representation thereon. I do not think the food manufacturers of the country should be compelled to abide by that. I think the Secretary of Agriculture should have made a more liberal selection.

The CHAIRMAN. What do you mean in this section by the words, "Commonly accepted standards?"

Mr. LANNEN. There is no other way to meet the condition which exists to-day, Mr. Chairman, because there are no other standards in existence excepting the standards of the food commissioners. That leaves it up to me to introduce any evidence that I see fit in a trial of a case to determine whether my articles are of a certain standard or not. If I want to go and find the leading authority on lemon extract, and introduce it in a trial of a case, I don't want to be prevented from introducing all standards.

If the United States food standard was adopted and they say that lemon extract shall be so and so, it must be that way.

The CHAIRMAN. There is no law that does require them to be adopted.

Mr. LANNEN. The effect of this bill might be that they will be adopted by a judicial decision, and I think certainly they will be adopted the first time a United States court recognizes them judicially. That will be the judicial law of this land, and the law of this land, to all intents and purposes, just as much as if they were written in this law.

The CHAIRMAN. You say that as a lawyer?

Mr. LANNEN. I understand it so. If the commissioners fix a standard and say that is the standard, I can not go in court and say that is not the standard, because the law has said so and so. I can not change the law by introducing another book. They are not binding on the American people now, and do not have the effect of law to-day; but they will have the effect of law if they are recognized under the national food law, and it will be the law under which this will operate.

Mr. BARTLETT. They will be the standard under which prosecutions will be made, if this becomes a law, in the United States court.

Mr. LANNEN. Certainly.

The CHAIRMAN. Suppose the law omitted any provision that would make a standard obligatory upon the court. The bills that we have before us now go upon the theory that there is no power in Congress to fix a standard that a court shall observe. I do not suppose there is any officer that thinks we have a power to fix a standard that the courts must observe. They are simply for purposes of guides, mere indications; nothing more than that.

Mr. LANNEN. I will say here as an attorney that this Congress has the power to fix a standard in the form of a regulation of commerce; but when this Congress undertakes to say what is wholesome and what is unwholesome, and goes into the determination of facts of that nature, it gets into the police power of the country, and they have not got that power. But they certainly have a right to make regulations and say that an article of food shall come up to this standard or that

standard before it can take a certain name. That is a regulation of commerce, it seems to me.

I would like to offer in evidence the laws relating to the use of preservatives under the English law; and also to state that the State of Michigan allows the use of benzoate of soda and other harmless preservatives by law. And I would also like to state that the State of Kentucky allows the use of preservatives by sufferance on the part of the food commissioners. Michigan also requires the name to be stated on the label. I also want to state that there are only three States in the United States to-day, North Dakota, South Dakota, and Wisconsin, that absolutely prohibit the use of these preservatives in food by name, such as the ones we have named here, excepting that mostly all of the States prohibit the use of preservatives in dairy products.

Now, Mr. Chairman, I thank you very much for your attention. I have taken up more time than I should.

The CHAIRMAN. Are there any other gentlemen representing your organization who wish to be heard?

Mr. LANNEN. There is no one else here that I know of representing our organization.

The CHAIRMAN. Mr. Yerington does not want to be heard?

Mr. LANNEN. I believe not.

The CHAIRMAN. Or your president?

Mr. LANNEN. Our president, I believe, has gone home.

The CHAIRMAN. If there is anyone who wishes to be heard, we will hear him.

Use of preservatives.

ENGLISH SALE OF FOOD AND DRUGS ACT, 1899.

[Law Reports, 62 and 63 Vict. Stats., 36-37, 1899.]

Page 196, paragraph 7: Provided that an article of food shall not be deemed to be adulterated by reason only of any preservative or coloring matter of such a nature and in such quantity as not to render the article injurious to health.

MICHIGAN.

The food law of Michigan permits the use of benzoate of soda, or other harmless preservative, when the fact of its presence is stated on the label.

KENTUCKY.

The food law of Kentucky permits the use of preservatives when the fact of their presence in the food is stated on the label.

STATEMENT OF R. M. ALLEN, OF LEXINGTON, KY.

Mr. Allen was sworn by the chairman.

The CHAIRMAN. What is your name, if you please?

Mr. ALLEN. R. M. Allen.

The CHAIRMAN. Where do you reside?

Mr. ALLEN. Lexington, Ky.

The CHAIRMAN. What is your occupation?

Mr. ALLEN. The food law of Kentucky is enforced through the experiment station, and through a division of the experiment station work, and I am chief of that division.

The CHAIRMAN. How long have you been engaged in that work?

Mr. ALLEN. Since 1900.

The CHAIRMAN. Are you a chemist?

Mr. ALLEN. I have had some training in chemistry and also in law. I am a member of the Lexington (Ky.) bar. I am at work in the station in the daily enforcement of the law and with the inspection, getting cases ready for court and enforcing the law more than chemical investigation.

The CHAIRMAN. You may proceed with your statement. Are you a State official?

Mr. ALLEN. Yes.

The CHAIRMAN. Appointed under the laws of the State?

Mr. ALLEN. Under the laws of the State of Kentucky.

The first thing I want to bring to the attention of the committee is a resolution from the State food commissioners, of which I am the secretary and have been the secretary since 1902. This resolution was adopted at St. Louis at a meeting held jointly between the food commissioner and certain manufacturers and scientists from large universities, known as the "International Pure-Food Congress of the Louisiana Purchase Exposition." That congress had under consideration a number of subjects, and among them needed legislation. The committee on legislation considered needed national pure-food legislation, and unanimously adopted the following resolution:

Resolved, That the International Pure-Food Congress and the National Association of State Dairy and Food Departments, assembled in its eighth annual session, September 26–October 1, 1904, at Congress Hall, on the Louisiana Purchase Exposition grounds, at St. Louis, Mo., hereby records its indorsement of the Hepburn pure-food bill (H. R. 6195), as passed January 19, 1904, by the United States House of Representatives, and most urgently requests the passage of the same by the United States Senate.

The general committee on resolutions, which reported that resolution to the congress, is attached to the resolution, and I ask that the resolution be filed.

Mr. TOWNSEND. What is the date of that resolution?

Mr. ALLEN. That was in 1904.

GENERAL COMMITTEE ON RESOLUTIONS.

J. W. Bailey, president of the association and chairman of the congress ex-officio; A. H. Jones, commissioner from Illinois, chairman; Chevallier G. Ros-satti, representative from Italy, chairman committee on future international conference; M. A. Scovell, director Kentucky Experiment Station, chairman committee on uniform interstate and international standards; H. W. Wiley, Chief United States Bureau of Chemistry, chairman committee on the use of antiseptics and color in foods; J. B. Noble, commissioner from Connecticut, chairman committee on alcoholic beverages; Horace Ankeney, commissioner from Ohio, chairman committee on baking powders; Albert E. Leach, director laboratory Massachusetts State board of health, chairman committee on drug adulteration; J. Q. Emery, commissioner from Wisconsin, chairman committee on legislation.

Mr. TOWNSEND. Has there been any action since by the committee?

Mr. ALLEN. There has been no action since then by the committee—yes, following that, in the winter of 1905, part of the committee, consisting of Mr. Noble, Mr. Ankeney, and myself, three members of the legislative and executive committee, met in Washington and presented a memorial to President Roosevelt asking him to recommend the

passage of national pure-food legislation to the National Congress. And in the past year——

Mr. BARTLETT. You say that was done by three members?

Mr. ALLEN. Yes, sir; three members.

Mr. BARTLETT. How many composed the committee?

Mr. ALLEN. Five composed the committee. During the past winter we had a meeting in Washington——

Mr. BARTLETT. By whom, the committee?

Mr. ALLEN. The committee; and a joint committee petitioned President Roosevelt again, called upon him again, and presented a memorial asking him to include in his recommendation to Congress national pure-food legislation.

Mr. TOWNSEND. Have you taken any action rescinding the resolution adopted?

Mr. ALLEN. No. I want to say that State food departments, more than any other State officials, are in favor of national legislation by Congress to regulate the interstate side of this pure-food problem. In the insurance world you will find most of them are against that legislation, but the food officials struck a problem when they began to enforce the law. That problem was this: They found two sources of adulteration. They found one source in their State and another source in interstate commerce—a source which had its roots in interstate commerce.

We want a law which will go to the root of that part of the evil which exists in interstate commerce, and it can only be gotten at by Federal law. Recognizing that, the food commissioners organized for the specific purpose of unifying State laws and for the purpose again of securing from Congress the enactment of a fair pure-food law which would get at the interstate side of adulteration.

Mr. BARTLETT. Do you know anything about the beginning of this agitation? The saying is that the whole thing started by reason of the contest between the baking-powder manufacturers and the whisky manufacturers seven years ago.

Mr. ALLEN. Seven years ago was previous to my connection. I came in in 1900. But there has been agitation among the baking-powder people, agitation among the whisky people, and agitation from the preservative people. I think, however, that you will find that the agitation on this subject came—I have forgotten the man's name, but there is a man in Boston who did quite a lot of work. He is a public-spirited man. He wrote over the country—perhaps Doctor Wiley will remember his name; I do not. The Bureau of Chemistry about twenty years ago began to analyze these things in connection with some of the experiment stations, and began to accumulate evidence. Out of this evidence State legislatures began to pass laws creating State departments.

Mr. BARTLETT. I was inquiring with reference to the national law.

Mr. ALLEN. Do you mean where that came from?

Mr. BARTLETT. Yes; agitation for Congress to pass a law.

Mr. ALLEN. As I said, the Association of State Food Control officials was organized—is Mr. Grosvenor in the room?

Mr. GROSVENOR. In 1898.

Mr. ALLEN. Mr. Grosvenor was at that time food commissioner of the State of Michigan. Mr. Blackburn was food commissioner of

Ohio. Mr. Grosvenor found that he would make a ruling in Michigan which Mr. Blackburn in Ohio did not agree to, and Mr. Blackburn would make a different ruling from him, so they came together.

Mr. BARTLETT. A court may make a ruling in one State and another court right across the line will rule on the proposition differently. That is not unusual.

Mr. ALLEN. No, gentlemen, you will find in the law of chemistry and everything else certain principles which all recognize as being just and fair.

I want to say in this connection right here that there are two sides to this food proposition. There is the side which agitates and clouds the issue, brings up this point and that point, which, perhaps, does not materially affect the question; but when you come specifically down to these questions: Should glucose be sold as glucose or as honey or maple sirup? Should any synthetic product be sold under the name and trade terms of the genuine product which it is designed to imitate? Should a preservative be allowed use without any control or restriction?—when you come down to those propositions I think that not only the food commissioners, but the majority of the reputable manufacturers are agreed. But I say, Mr. Chairman, that I can take a committee from food manufacturers which would meet good men like yourself and others in Congress who are interested on this subject and cut aside from all of these issues that have been clouding and confusing the main central idea, and I believe that you could all agree upon a bill which would be fair and equitable to all and which would accomplish the purposes for which we are working along the lines of national pure-food legislation. In our Kentucky work we follow that policy. In our Kentucky work we are not only the food commissioners of the people, the consumers, but we are also the food commissioners of every reputable manufacturer, and he has a hearing, a frank man-to-man hearing, whenever he wants to come in and discuss the subject.

Mr. TOWNSEND. Has your national association of pure-food commissioners taken any action in regard to standards prescribed by the Agricultural Department—that is, within a year?

Mr. ALLEN. There is a resolution, an official resolution, adopted concerning standards, passed in St. Paul. I perhaps, however, to enlighten you, should give you a history of the whole standard subject with food commissioners.

Mr. TOWNSEND. Answer my question, please.

Mr. ALLEN. They have petitioned the Secretary of Agriculture to take up the study of certain questions which they did not have time or money to prosecute under the State appropriations, and among the first things they petitioned him to do was to study the effect of anti-septics and preservatives upon health.

Mr. BARTLETT. Did you have a meeting of the food commissioners at Portland, Oreg.?

Mr. ALLEN. Yes, sir.

Mr. BARTLETT. What did you do there?

Mr. ALLEN. We discussed the subject of food standards and continued our present standard committee. It has always been appointed for the purpose, and did not rescind the resolution which was adopted in St. Paul the year previous. We did not have it up, and when a

food official from the State of Illinois presented in printed form a set standard for adoption by the convention they were attributed to certain members of the food standard committee, namely, if I remember correctly, Mr. Fisher, of Wisconsin; Mr. Ladd, of North Dakota; and Mr. Winton, of Kentucky.

Mr. BARTLETT. You took no action whatever there.

Mr. ALLEN. We took no action, only ordering those standards turned over to the executive committee to be withheld from distribution, in order that the views of those members of the committee should not be misrepresented. I understand it has been represented that the food commissioners are antagonistic to the Federal Government and the standards which they have established. The food commissioners are not going to admit in their State any standard which they do not believe to be just. I want to say that the large majority of food commissioners of this country are with the Federal Government in bringing about a solution of this problem. They believe it can not be solved without honest cooperation from all sources.

Mr. TOWNSEND. Will you please answer my question?

Mr. ALLEN. I was going to say that the food commissioners early petitioned the Federal Government to take up the subject of preservatives and determine the wholesomeness or unwholesomeness of certain preservatives in order that they might more fully enforce the State food laws. Then the question of standards came up, and it was thought wise to seek the cooperation of the Association of Official Agricultural Chemists, and I have heard some reflections about their ability. I believe that they have studied this question more than any other association of scientists in this country. They have worked on it for a long time, and I would consider their work as the most competent evidence that we could introduce.

Mr. TOWNSEND. I have no doubt about that, but I want to get at the facts.

Mr. ALLEN. We appointed a committee to cooperate with the Association of Official Agricultural Chemists in bringing about the best standards under which we could enforce our State pure-food laws. The Association of Official Agricultural Chemists have finally appointed a food-standard committee, which now is the association, I understand, which has been empowered by Congress to recommend to the Secretary of Agriculture the adoption of food standards. At St. Paul, in 1904, we had the question of standards up and discussed it very thoroughly. Mr. Eaton, of Illinois, has given quite a little work to this subject, and at Portland the year before he presented standards which he wanted adopted and which we did not adopt. He also presented some standards at St. Paul, and it was ordered that his standards be printed for consideration by the food commissioners, and that so far as adopting the standard which had been promulgated by the Secretary of Agriculture, they be the standards of the association. I would say that in Kentucky we are working under those standards.

Mr. TOWNSEND. Is that the committee that is meeting now in Chicago, this week?

Mr. ALLEN. I understand they have their meeting there. That is the food standard committee of the Association of State Food Commissioners.

Mr. TOWNSEND. What is the object of the meeting?

Mr. ALLEN. I suppose the object of the meeting is to discuss standards among themselves, discuss the standards which perhaps have been offered or recommended by the Food Standard Commission of the United States Department of Agriculture.

Mr. TOWNSEND. You spoke about preservatives. Do you allow the use of benzoic acid as a preservative in Kentucky?

Mr. ALLEN. Our Kentucky law is this: We have a provision which says that if an article contains any antiseptic or preservative not known to the purchaser or consumer that it is adulterated. That is all. Under that law I believe I can state that the use of preservatives is less in Kentucky, or at least as little, as any other State in the United States. Why? We don't get at the subject by a provision. We get at the subject by the plain label, and that is my doctrine of a pure-food law, and it is the doctrine which has been so well exemplified and established in Kentucky that we believe almost every evil can be cured by it, because it leaves a thing to the consumers, and the consumers have quite a good deal of sense about what they are eating and drinking.

Here is a simple illustration. Take the subject of meats. One of the packers has established a plant in the city of Chicago, a separate plant, to manufacture sausage for Kentucky. Why? Because the law requires that when a grocer puts a lot of sausage on the table that he shall put over it a sign saying that it contains boracic acid. Well, the packers in selling in Kentucky under that condition of affairs—

Mr. TOWNSEND. Your law does not prescribe a quantity?

Mr. ALLEN. No.

Mr. TOWNSEND. It can not be used as a preservative?

Mr. ALLEN. However, under a different provision of the law, should it be shown that any antiseptic or preservative was injurious to health, under the general clause—there is another clause which states this: If it contains added substances which may render food injurious to health of the consumer—if a man should put in a large amount of antiseptic, or if we should choose to proceed against a man under that general clause prohibiting injurious substances, then if we could establish the fact that it was injurious to health—but we accomplish the full purpose of our law by our label.

You take the question of tomato catsup. If there is one product which is the hardest to get on the market without a preservative it is catsup, because the bottle stands on a restaurant table for weeks after being opened. Of course a lot of tomato catsup is made out of pulp which has been stored, which has been put in barrels, and must be kept some time before it is put in the bottles, so there is a necessity for benzoate of soda before it gets in the bottle.

Mr. TOWNSEND. The point I want to get at you do not seem to understand. I would like to know if you do or do not prescribe, under any circumstances, the amount of preservative?

Mr. ALLEN. No; we do not.

Mr. TOWNSEND. Do you furnish any preservatives yourself?

Mr. ALLEN. No, sir.

Mr. TOWNSEND. Does the State?

Mr. ALLEN. No, sir.

Mr. TOWNSEND. Don't furnish benzoic acid?

Mr. ALLEN. No, sir.

Mr. TOWNSEND. Don't pass upon it as to the amount that can be used as a preservative?

Mr. ALLEN. No, sir; because, as I said a while ago, we accomplish so much under the labeling business. We say to a man—

Mr. TOWNSEND. Do you recognize the use of antiseptics?

Mr. ALLEN. The law recognizes the use of antiseptics under that clause.

Mr. TOWNSEND. Do you make any examinations as to the use or the effect of benzoic acid or any other preservatives?

Mr. ALLEN. I have not made any personal investigation; only familiarized myself perhaps with the trend of what is going to happen.

Mr. TOWNSEND. Have you commissioners?

Mr. ALLEN. Well, our commissioners—Prof. M. A. Scovell is a member of the United States Food Standard Commission.

Mr. TOWNSEND. Did he make any investigation?

Mr. ALLEN. As far as he is concerned, I suppose he has that subject under consideration.

Mr. TOWNSEND. Has he made any investigation of this subject in the past?

Mr. ALLEN. I can not state, because I have only been with him about six years.

Mr. TOWNSEND. During the six years, then?

Mr. ALLEN. No, sir; excepting the general consideration of this proposition. I want to say, along that line, that a year or two ago, I believe in 1903, I had a short trip in Europe and visited the Government laboratories in London, Berlin, and Paris.

When I got back it was my general impression that the weight of opinion was being brought against the use of preservatives in food. I remember stating in an article in the Chicago Record-Herald, which I wrote, that the American food manufacturers should shape their business to meet the conditions which the prohibition of preservatives would impose, because I did not believe that the people would buy foods with preservatives in them. We have demonstrated that in Kentucky.

Mr. TOWNSEND. Manufacturers don't want them either if they can get along without them.

Mr. ALLEN. Yes; and the manufacturers are carrying on extensive experiments; they are going into the nonpreservative field; and along that preservative line I would like to read you—

Mr. GAINES. You said that sausage was sold in Kentucky, prepared in Chicago, and that it had to have a certain sign on it, that the sausage contains boracic acid. It has been claimed here that these preservatives prevent the formation of germs under certain conditions. Frequently they would be more harmful than the preservative. What is your observation of that question? Would you think that the boracic acid would do more harm by preventing the growth of germs in the ordinary course of business, considering the length of time that the stuff is kept, than the germs themselves?

Mr. ALLEN. If there was absolutely no way of getting the sausage from Chicago to Lexington except by shipping it through the heat, the conditions of atmosphere and climate would settle it. If there was no means of preservation in the sausage except boracic acid, and

if you shipped the sausage during the warm weather to Kentucky and put it on my table, it would not be fit to eat; it would be laden with germs. That is the pith of that argument.

Mr. GAINES. Under such conditions of shipment boracic acid will do more good than harm.

Mr. ALLEN. Boracic acid would keep that meat from spoiling.

Mr. GAINES. Take the way it is offered for sale in the ordinary butcher shop or grocery store.

Mr. ALLEN. Boracic acid is absolutely unnecessary.

Mr. GAINES. How about the situation where a person does not have an ice box? Take the working people and the country people who have not ice boxes, how about them?

Mr. ALLEN. Well, I can not imagine a condition of affairs so deplorable as that our working people will not have some way to preserve their food. I can not imagine—I don't want to imagine—a condition of affairs in which this sausage will be put up without the spices or salts or seasoning that go into it or being smoked. I don't want to imagine this sausage being put in our homes and being dumped on our laboring classes for that kind of consumption. If our laboring classes had no ice boxes—

Mr. GAINES. Most of them have not, you know.

Mr. ALLEN. We would have to appeal to boracic acid. For purposes of storage we already have sufficient means of preservation which will keep the sausage.

Mr. GAINES. What are those means of preservation—ice boxes or spices?

Mr. ALLEN. Let us say smoking the sausage. Here is just one thing that I want to bring out—

Mr. GAINES. I am asking for information entirely.

Mr. ALLEN. You speak about cheese, about sausage, and kraut and pickles, and things of that kind. What are they? They are nothing but the developed means of food preservation which have been brought out. You are familiar with those recognized flavors.

Take milk, for example. Here is milk in its fresh state. In sending that milk perhaps out of the State to some other place in open buckets it would spoil—it would spoil without formaldehyde; so they have developed cheese out of the milk, and we do not need boracic acid in cheese. The Germans have developed sausage more than anybody else, and before it was sold an attempt was made to preserve, and then, perhaps, to add the flavor later. But out of the attempt they have developed their sausage; and out of the attempt to preserve fruits and vegetables they have developed jams and their krauts and pickles and things of that kind. There are certain things about that preserving which cost money. It costs little more money to take a barrel of tomatoes and make it up immediately into soup. It costs a good deal to handle a large crop of tomatoes, thousands of acres, more than it does to put the pulp in a barrel and put benzoate of soda in it and make it up into soup as you go along throughout the year.

Just on that point I want to read a letter that I have here. When we make a report to our government in Kentucky on adulterated food products, we have established a system of writing each food manufacturer, saying that this report is going to be made, and saying to him that if he has any statement to make in connection with our

report which is reasonable we would be glad to include it along with the statement that his soup is adulterated. Here is a statement from the Van Camp Packing Company, of Indianapolis, Ind., a very large firm of packers, who put up soups and other vegetable products. I want to read you just one clause. They say:

We formerly used a coal-tar dye in our tomato soup, but during the season of 1905 and henceforward the use of coal-tar dye and benzoate of soda will be entirely discontinued in this product, for we have arranged to make it entirely from fresh tomatoes in the height of the packing season, which enables us to produce a palatable-looking article without the color and relieves us of the necessity of putting away stock and preserving with benzoate of soda to avoid fermentation.

That, to my mind, is the whole sum and substance and gist and everything else of preservatives.

Mr. TOWNSEND. Do you need any preservative in soup that is hermetically sealed in cans and is used immediately upon opening?

Mr. ALLEN. This man says here that he makes his soup out of fresh tomatoes without putting away stock. He does not use a preservative to keep it.

Mr. TOWNSEND. They do not generally use a preservative in soup when it is put up in hermetically sealed cans, do they?

Mr. ALLEN. If he uses fresh tomatoes he does not need it. I suppose that if he does not put up his stock in barrels during the winter he does not need it.

Just in that connection I want to read a statement in a letter from the Goodwin Preserving Company, of Louisville, Ky., another well-known firm of food packers. Mr. Blakemore, who writes this letter, says:

We could repeat many arguments that have already been made, and could add to it accounts of personal experience and experimentation all in favor of permitting the use of antiseptic preservatives in prepared food products, but we are willing to admit that this appears to be one of those cases where it is not the use but the abuse of a good thing that makes it objectionable. The injudicious, unintelligent, and also unscrupulous manner in which agents are employed is without doubt a menace to the health and welfare of the general public, not only because of the presence of antiseptics in excessive quantities, but also because of the character of the stuff it is made possible to purvey consumers. This we believe to be the best, in fact, the real reason why the use of preservatives should be prohibited.

The CHAIRMAN. The hour for suspending our session has arrived. Without objection, we will take a recess until 2 o'clock.

Adjourned at 12 o'clock noon.

AFTERNOON SESSION.

The committee reconvened at 2 o'clock p. m., pursuant to the adjournment, Hon. W. P. Hepburn (chairman) in the chair.

STATEMENT OF MR. R. M. ALLEN—Continued.

Mr. ALLEN. Mr. Chairman, before dinner I read a letter from the Van Camp Company in respect to their tomato soup. The letter is written generally regarding all of their products. During the lunch recess Mr. Grosvenor asked me if this firm put benzoate of soda in their catsup sold in Kentucky. Our last analysis shows benzoate of soda in Van Camp's catsup, but which is so labeled. I want to say,

however, that firms give us a catsup which has no benzoate of soda in it, and these experiments have been so far a success. They can do this by putting the catsup in smaller bottles and by making it out of fresh materials, and not storing the pulp, but bottling the tomatoes as soon as possible after being pulled from the vine.

Just another thing with regard to standards. There is an impression that the standards that have been established by the United States Department of Agriculture have been rejected, to use one man's language, "as inaccurate and impracticable" by the National State Dairy and Food Departments. The impression has been brought about, I think, by the criticism of one man in the association who disagrees with the standards, and has a right to disagree, as any State food official has the right, if he so chooses; but I did not go into this fully this morning, and very briefly I want to state the action of the State on that subject, as follows: In 1899 there was a resolution to the Secretary of Agriculture asking him to take up the study of preservatives in foods in order that the State officials might have the results for their guidance, and in 1900 there was a reaffirmation of that request.

In 1901 food standards came up, and Mr. Eaton, who is the man who objects to the standards established by the Secretary of Agriculture, presented some standards for adoption. Mr. Hamilton, of Pennsylvania, objected and said that proposed standards should be discussed and considered thoroughly before being adopted, and it resulted in the appointment of a committee from the State chemists to confer with the Official Agricultural Chemists. In 1902 at Portland, Oreg., Mr. Eaton presented a plan to the association for calling together a convention which would consider and adopt food standards. Doctor Doolittle, then State analyst of Michigan, told the association that the Official Agricultural Chemists had taken the work up thoroughly and recommended that the committee of State analysts be continued to confer and cooperate with the Official Agricultural Chemists.

In 1903, at Portland, Oreg., Mr. A. H. Jones, food commissioner of the State of Illinois, in which State Mr. Eaton is analyst, stated the need of food standards in his work. When he was asked for an interpretation of a certain law he wanted to know the compiled facts regarding food products, which is virtually what food standards are, and he moved that the food standards which had been adopted by the committee from the Association of Official Agricultural Chemists be the standards of the National Association of State Food Departments and be recommended for adoption in the States. Mr. Frear, who was a member of that commission, objected to that resolution in this form, and said that it should be amended so that the standards which had been promulgated by the Secretary of Agriculture, not recommended by the committee but which the Secretary of Agriculture had finally promulgated, be adopted as the standards of the association and be recommended for adoption in the States. Mr. Jones wanted to take in the whole work of the committee, but Mr. Frear suggested that it would add weight to the standards to adopt only those which the Secretary of Agriculture had promulgated.

The CHAIRMAN. Was there any action there?

Mr. ALLEN. The resolution was adopted that the food standards which had been established by the United States Department of Agriculture be the food standards of the National State Dairy and Food Departments.

The CHAIRMAN. That was adopted in 1904?

Mr. ALLEN. In 1903. In 1904 we had another meeting in St. Louis and appointed a committee. We had an international congress, by far the largest gathering of men who were interested in pure food issues that has ever been called together. We appointed different committees to take up these different subjects, a committee on alcoholic beverages, and so on, and among others one on food standards, and the standard committee turned in a resolution which I can read.

The CHAIRMAN. What committee?

Mr. ALLEN. The committee on standards.

The CHAIRMAN. Food standards?

Mr. ALLEN. The committee on food standards reported this resolution to the general committee on resolutions, where it was readopted, and that committee reported it to the floor of the congress, where it was adopted, with the exception of Mr. Eaton's objection, who was a member of the committee on standards for the congress. The resolution is short, and reads as follows:

Whereas the Association of State Dairy and Food Departments recommended by resolution at St. Paul last year that the standards being formulated by the committee appointed by the United States Secretary of Agriculture be recommended for adoption by the several departments; be it

Resolved, That the commissioners and State analysts be urged to cooperate with the committee appointed by the Secretary of Agriculture in formulating these standards by furnishing all suggestions possible for the formation of an authoritative set of standards.

This was signed by all the members of the committee except Doctor Eaton, who, however, did not present a minority resolution. It was signed by the following gentlemen: M. A. Scovell, C. P. Sherwood, H. E. Barnard, R. G. Evans (advisory), and H. W. Wiley.

The CHAIRMAN. Was that resolution adopted?

Mr. ALLEN. It was unanimously adopted by the congress.

The CHAIRMAN. That was in 1904?

Mr. ALLEN. Yes, sir; in 1904. In 1905 we had a meeting in July in Portland, Oreg., which meeting considered very few subjects relating chiefly to printing the journal of the proceedings. That had been printed by letting a firm of publishers take the journal of proceedings and secure advertisements for printing it. It brought about no end of trouble, and involved the commissioners in controversies over advertisements, and so we decided definitely to vote the system out. There was, of course, a strong fight on the part of the publishers to keep up their contract, and that was the principal question which came before the commissioners during the whole time of that meeting.

The CHAIRMAN. Was there any action by that congress on this subject of food standards?

Mr. ALLEN. The only action was this: It reappointed its usual food standards committee. Now, I do not want it understood that because we have recommended for adoption anybody's standards we do not keep up our own food standards committee and keep on investigating. But that committee is not authorized to establish standards, and if the association changes its policy it can only change its policy as an association, and so the former resolution at St. Paul, readopted at St. Louis, is the resolution as it now stands.

The CHAIRMAN. Has that been changed?

Mr. ALLEN. No.

The CHAIRMAN. By any action of the congress?

Mr. ALLEN. No; it has not. But Mr. Eaton criticised the standards at Portland, as he has a right to do; but his criticisms which have been spoken of as "a slap at the Department of Agriculture" I think have been misunderstood to mean that the food commissioners have gone back on the standards which the United States Department of Agriculture has established. In that connection, though, Mr. Chairman, this is one of the vital questions in this bill. Ultimately the determination of a lot of these questions is a scientific subject and this must be recognized, and in that I have differed from some of the commissioners. Some of the commissioners have advocated a commissioner of foods to be appointed by the President, and I have always maintained that the enforcement of a pure-food law should depend absolutely upon what is found in the test tube, and the man who finds things in the test tube should be removed from all influences of special interests.

That is the theory that I have always maintained and I think it is now the dominant theory with the State food commissioners. But the commissioners on some things, to bring out the facts, just like this committee, hold different views. But on the general principles they all work together, and I think all of them are in favor of and want to bring about cooperation between Federal workers and State workers, and realize that only such cooperation can successfully control and combat this evil that we are working to do away with.

Mr. TOWNSEND. Do you think that the States generally will do that if we adopt a pure-food law?

Mr. ALLEN. There is the only thing against uniform legislation. Now, it is easy for a convention to meet in Washington and unite upon a uniform divorce law—

Mr. BARTLETT. A divorce law?

Mr. ALLEN. Yes; because there are no interests fighting that. But when we enact a good law in Kentucky the interests who are fighting pure-food legislation may be successful in defeating such a law in some other State.

Mr. TOWNSEND. Do the States, so far as your experience goes, readily conform to the rulings of the Agricultural Department in reference to foods?

Mr. ALLEN. I think you will find that all the standards—the rules—that have been adopted by State commissioners have been either adopted as coming from the Department of Agriculture or they have been adopted along lines suggested by the Department of Agriculture.

Mr. TOWNSEND. I asked you if they generally do adopt them?

Mr. ALLEN. Yes; they generally do adopt them.

Mr. TOWNSEND. They generally do that?

Mr. ALLEN. Yes, sir; they generally do that. Mr. Jones, of Illinois, who is Mr. Eaton's commissioner, I remember, in the 1904 report publishes those standards for the guidance of his department. I had a letter the other day from Mr. Barnard, of Indianapolis. We wanted, if possible, to get at a label on a bottle of extract which would conform to the Kentucky law, the Ohio law, and the Indiana law. I wrote Mr. Ankeney, at the request of one of the manufacturers on behalf of his firm and a number of manufacturers, asking if he would meet me in Cincinnati and get Mr. Barnard to come down. Mr.

Barnard wrote us that a uniform label could be arranged by following the standards established by the United States Secretary of Agriculture. So at his suggestion we took up that plan, although it had not occurred to me before to conform the label to the standard, because in Kentucky we have already established those standards for our guidance.

Mr. TOWNSEND. You appear here in the interest of this law or this bill for the benefit of the State of Kentucky, I believe. Is that the notion, or do you appear here for some other reason?

Mr. ALLEN. I appear for the benefit of the State of Kentucky.

Mr. TOWNSEND. Have you been authorized by anybody to do so?

Mr. ALLEN. Yes, sir; the State of Kentucky has recognized the work.

Mr. TOWNSEND. You have no doubt that the State of Kentucky will adopt the classifications?

Mr. ALLEN. I have no doubt about the State of Kentucky, and if you will look at the Maine bulletin you will find that they have established the same—in fact, the majority of the States—and you run over the whole list and you will find that of the States which have established standards the most of them have adopted the standards of the Department of Agriculture, though I want to state it distinctly here that I do not believe your interstate-commerce bill is going to fasten any standards upon Kentucky. If we ever decide we want to do something else besides what somebody else has prescribed for us, we will do it; and if we ever determine that somebody's standards are not good, we are going to disagree with them, and I do not think that the States have committed themselves for all time to come.

Mr. TOWNSEND. Yes. I was wondering why, as I had understood that was your position—your State had sent you down here to advocate the bill—unless you expected that the State was going to adopt it.

Mr. ALLEN. If you will pass a bill which should be a bill—and I do not think Congress will pass anything else—I believe that Kentucky will adopt it. If you do not give us a competent bill, if you give us one that does not protect us, I guess we will continue to do things our own way in Kentucky.

Mr. TOWNSEND. You may have already discussed this question when I was not here, and if so, I do not want you to go over it again; but do you believe there is any brand of catsup—for instance, tomato catsup—that is put up and sold generally on the market, which does not have a preservative in it.

Mr. ALLEN. In the State of Kentucky there are two brands of catsup, one put up by the H. J. Heinz Company and the other by Lutz & Schramm, which have no benzoate of soda. That is one experiment that I have been very much interested in, knowing that catsup is the biggest problem in question of practical need for antiseptics and, by the way, you are not going to have pure foods until you put your regulations into practical effect in the factories. If the manufacturers are up against problems, you must help them out.

Mr. TOWNSEND. That does not quite answer my question. Does that Heinz catsup have any preservative in it?

Mr. ALLEN. No; not only from our tests for antiseptics, but if you leave those catsups open in five days or a week they will ferment, and that indicates that there is nothing in them to preserve them.

Mr. TOWNSEND. So that you have made sufficient analyses of the

Heinz catsup and the other catsup you mentioned, so that you are prepared to testify under oath that there are no preservatives in that catsup?

Mr. ALLEN. So far as our experiments go.

Mr. TOWNSEND. They have gone far enough to show that that is a fact?

Mr. ALLEN. Only this. We take samples up all over the State from time to time. About two weeks ago a sample came in from the western part of the State and another from Covington of the Heinz catsups. These samples were taken up by inspectors, and both of them were analyzed, and neither contained benzoate of soda or the artificial color. I want to state, however, that if Williams or Snider or Heinz or any other firm comes into the State of Kentucky and say, "Gentlemen, we are going to do a certain thing," if that firm has any business standing and responsibility, you can depend upon their word. I am one of those who believe that three-fourths of American business is honest. If, under those circumstances, a manufacturer does not do what he says he intends to do, he has lost all cause in court.

But because Mr. Heinz, for instance, has said that he is going to put a catsup on the market without preservatives, that does not mean that he is not going to be inspected. He is continually inspected. We have had lately a request from one of the manufacturers asking if it was true that Heinz was making a catsup without benzoate of soda or any preservative, saying that he doubted it, and we gave an order immediately to take up his goods in the State, to take samples all over, and bring them in, and those were being analyzed when I left.

Mr. TOWNSEND. You have not the results of that examination, as yet?

Mr. ALLEN. No.

Mr. BURKE. I understand you to say that those catsups will ferment in a short time after they are opened?

Mr. ALLEN. Yes.

Mr. BURKE. About how many days will it be before they ferment?

Mr. ALLEN. It depends altogether on where you leave them. If you put them in the ice box they will last seven, ten, or twelve days.

Mr. BURKE. Is that catsup sold at the same price as the others are?

Mr. ALLEN. No; it is a smaller bottle. But I understand that there is no change from Heinz's old price on such bottles. He is still selling that same sized bottle at 15 cents, I believe.

Mr. BURKE. Do I understand that Heinz is not selling any other catsup in the State, except that which does not contain any preservative?

Mr. ALLEN. We have not found any as yet. I saw one of his salesmen the other day and asked if he was having any complaints from the dealers about that catsup. He told me that for the present the demand had exceeded their supply—the catsup without a preservative.

Mr. BURKE. Does your law prohibit the use of benzoate of soda?

Mr. ALLEN. It requires that it be placed on the label. I do not want that understood as meaning that we are in favor of preservatives, because we are not. I believe they should be restricted to the minimum, and possibly prohibited; but our legislature seeks to accomplish that prohibitive purpose by demanding that the use be placed on the label.

Mr. BURKE. Does the law specify to what extent the benzoate of soda can be used?

Mr. ALLEN. No, sir.

Mr. BARTLETT. Do you appear here at the instance of the State of Kentucky?

Mr. ALLEN. I do.

Mr. BARTLETT. The State of Kentucky pays your expenses?

Mr. ALLEN. The State of Kentucky pays my expenses.

Mr. BARTLETT. No one else?

Mr. ALLEN. No one else. Also I appear at the instance of the cause of national pure-food legislation, which I have been interested in since I began the pure-food work.

Mr. BARTLETT. Are you not somewhat personally interested in that work?

Mr. ALLEN. No interest that has or would bring me in any way whatsoever any personal profit from any food, drug, or liquor interest to be affected by this bill. That motive has been attributed by the opposition for my work for a national pure-food law.

Mr. BARTLETT. I did not attribute any motive. I simply wanted to know—

Mr. ALLEN. I was not speaking of you, but I am speaking of things attributed outside of the committee.

Mr. BARTLETT. I never saw or heard of you until I saw you here, and I just wanted to ask you some questions about it.

Mr. ALLEN. Yes, sir.

Mr. BURKE. Do you consider in the quantity in which benzoate of soda is used in catsup it is harmful?

Mr. ALLEN. I do not believe my information warrants me in making a positive statement along that line. I might answer that by saying this, that when I am in a restaurant and notice a bottle of catsup and see on the label that it contains no preservative, for some reason I prefer that catsup; and also for other reasons, as I have stated, because I know that that catsup has to be made out of riper materials. I know that that man must use fresh materials to put in that bottle, and I know that I am getting fresh, red, ripe tomatoes in that catsup.

Mr. TOWNSEND. Could there be a very extensive manufacture of catsup out of absolutely fresh materials that had not been preserved, and could you get the bottles and everything necessary to put that up in a day?

Mr. ALLEN. That is a problem which confronts the manufacturers.

Mr. TOWNSEND. It is a practical problem?

Mr. ALLEN. It is a practical problem, and one which I have cited. I have cited you two firms in Kentucky who I believe are doing it. If there is any one product in which a preservative would be necessary and should ever be permitted by law, I believe it would be catsup, because the condiment is left open after it gets into the consumer's house.

Mr. RYAN. What length of time would the manufacturers of catsup have in which to bottle their product?

Mr. ALLEN. It would be bottled in the summer.

Mr. RYAN. How many weeks would they have?

Mr. ALLEN. That would extend over the ripening period of the tomato crop. Mr. Williams is here and he could tell you as to that. Mr. Williams, how long would a man have to put up his product?

Mr. WILLIAMS. If it was all put up at one point, for instance, in one State where the tomatoes ripened at the same season of the year, he might have five or six weeks.

Mr. BURKE. I was going to ask you, if all the catsup manufactured had to be manufactured without preservatives, would not it necessarily increase the cost of the product, if it all had to be made fresh, as you say it must be if it does not contain a preservative?

Mr. ALLEN. That would be a question. Let us take another example. Let us take the question of hams. Suppose I put up a ham and put boracic acid in it; and we will say I color it, or pretend that I have smoked it, but if smoked only in part, not enough to preserve it, and it is still a green ham, I have saved in that ham about 22 per cent of water, which weighs and sells, and so I can afford to sell that ham cheaper, while I represent it to be smoked, than when I have lessened the weight by sufficient curing.

Now, with the tomato manufacturer, of course, that problem does not enter, that matter of the evaporation of the water, and it is a question that I do not believe I have the information to express an opinion on. I believe, though, that if I want catsup without benzoate of soda I should be given a right to discriminate between the catsup that has benzoate of soda and one that has not.

Mr. RYAN. Would it necessitate the manufacturers of tomato catsup enlarging their plants very largely to bottle and put up their stuff in six weeks?

Mr. ALLEN. Yes, sir; it would necessitate a change in business. I have a letter from Mr. Mueller, of the H. J. Heinz Company, bearing on this subject. I can not find that, apparently. There is a special reason from the Kentucky work, which I want to bring before the committee, of why we need this national pure-food law to make it effective and also to aid justice in the enforcement of the law. I have here a bunch of reports which were sent to the county attorney at Owensboro, in Kentucky, as we do when we find adulterations and bring them up for prosecutions.

In this connection I want to say that when we find an article of adulterated food, we write the man a letter stating what we have found and that the facts, as provided by law, have been reported to the commonwealth's attorney. Mr. Lannen stated the other day that the food departments used detective means. In Kentucky we do not. We try to raise the trial out of everything but just the dependent facts. The man has had notice of the inspection in the beginning, and then he has this second notice if his product is adulterated. Here is a reply to one of those letters.

Mr. TOWNSEND. That is from the retailer?

Mr. ALLEN. Yes, sir. This is short and to the point and brings out the necessity for a national law. This Mr. Burke had been reported to the county attorney at this time, and he has since paid a fine for the sale of this product. Whether or not the manufacturer paid his fine I do not know, but if Mr. Burke—which he did—sold the product not knowing that it contained the things found in it, he of course was innocent of the fact that it was adulterated. And you can not enforce a law if you try to prove intent, and if the law is on the statute books, if it is a good law, the only way to do is to go ahead and enforce it. This letter reads:

I have just received your letter in regard to adulterated soup. Is there not some way I can correct this evil without going to the courts, for it is no fault of mine at all, and it seems to me that the manufacturer of such stuff should be fined severely instead of coming to me. If you can do anything for me I will appreciate it.

I thank you in advance for favors, etc.

Mr. TOWNSEND. What was the offense in that case?

Mr. ALLEN. The offense in that case was, Mr. Burke was charged with selling Van Camp's concentrated tomato soup—he has taken it out of the State now—which contained a coal tar dye and benzoate of soda, and not so labeled.

Mr. RYAN. What was the date of it?

Mr. ALLEN. The sample was taken up on June 5, 1905.

Mr. TOWNSEND. Your law forbids that?

Mr. ALLEN. Forbids—

Mr. TOWNSEND. The sale of such stuff as that?

Mr. ALLEN. Unless it is labeled.

Mr. TOWNSEND. It was not labeled?

Mr. ALLEN. No.

Mr. TOWNSEND. He had violated your statute down there in Kentucky?

Mr. ALLEN. Mr. Burke?

Mr. TOWNSEND. No; the manufacturer.

Mr. ALLEN. Yes.

Mr. TOWNSEND. By selling stuff that was not properly labeled?

Mr. ALLEN. By sending stuff into the State that was not properly labeled. If the Federal Government had said to the Van Camp Packing Company "You label your soup for what it is," the retailer would have known what he was selling.

Mr. TOWNSEND. Your State law does not forbid the sale of goods for the outside unless they are properly labeled.

Mr. ALLEN. We do not hold Kentucky manufacturers responsible for goods shipped out of the State. You have to pick goods up in the hands of the retailer before you can examine them, and when the retailer sells these goods he becomes liable; and if you take up this burden of establishing innocence, you have taken the burden of which the legislature has freed the court.

The CHAIRMAN. I will have to ask you to condense your remarks. You have had an hour of the time of the committee, and our time is limited.

Mr. ALLEN. I had a letter from Mr. Small, who is food commissioner of South Dakota, asking me to bring a point before the committee.

The South Dakota legislature passed a law providing that articles of food should be labeled to show the place of manufacture—the true place of manufacture—and the true name of the manufacturer. The supreme court of South Dakota has held this requirement unconstitutional, as being an unnecessary burden upon interstate commerce.

Entering into that question, that the legislature has not the right in its police power to put unnecessary restrictions upon interstate commerce, Mr. Small asked me to bring that to the attention of the committee and to ask you to cover this point. The place of production is already covered in the Sherman law, which requires that food products must be truthfully labeled as to the State or Territory in which they were produced. But the real name of the manufacturer has not been covered by Federal law. Mr. Small claims, and in fact we all claim, that food adulteration has come up because certain principles of identification have been violated; because manufacturers have made it possible by misrepresentation to impose certain articles on the market, and we believe that the following information should be made known:

Who made it; where was it made; what is its quality and substance; has any adulteration been practiced in its manufacture? and if so, let the purchaser know it. And when these principles of identification have been established, of course the consumer will take care of the rest.

Mr. BURKE. Is it necessary to say where it was made and who made it?

Mr. ALLEN. Take this question of the manufacture of tomato catsup. You can not find all of the adulteration by examination. There may be contamination, and things of that kind, in the product, and so you should associate the product on the market with where it was made.

Take the question of bread. The anti-tuberculosis league has said that bread is a medium for transmitting tuberculosis. Bread is sometimes made in sweat-shop factories. Of course you can not examine a loaf of bread or a box of crackers and determine if they are contaminated with tuberculosis germs. But if you could identify the place of production and know that it was an unfit place of production, that would stop all production in those places, because they could not sell those things in the market.

Mr. BURKE. Might not some legitimate dealer be putting up goods in factories under a brand of his own, absolutely pure, so far as any content or anything harmful is concerned, and not want to disclose, very properly, where it was manufactured?

Mr. ALLEN. That is possible.

Mr. BURKE. I mention that because I am from South Dakota, and I know something about that.

Mr. ALLEN. That is possible, and that was an allegation which the appellants made; but under that system food adulteration has sprung up. These men say "There is our guaranty." But what has that amounted to in the past? Under that guaranty food adulteration has been practiced. When we guarantee a certain thing, that is the end of it. We say it is good and pure, and it is good and pure.

Mr. BURKE. They might say, if they were putting up something in a State, and it was being manufactured elsewhere, Ought it not to be a sufficient guaranty to know who was the person who was putting it into the packages and offering it for sale?

Mr. ALLEN. For the purposes of inspection and placing full responsibility for an adulteration, I think it should be known where it was made and who made it. I know that involves a great trade controversy, because there is a system of wholesale merchants in the United States who control the output of a number of factories. And by the way, this controlling of factories enables them to put the output into a common standard, and throw it out through a common channel, and so restrict the competition necessary to produce the best in food products.

Mr. RYAN. You, being from Kentucky, and Kentucky being a great whisky producing State, I would like to ask you what action you have taken in regard to whisky bottled in bond and the blended article?

Mr. ALLEN. The State food law of Kentucky has so far exempted whisky from the operations of the food law, but I know something about the subject from the discussions in the association of State commissioners, and if you wish my opinion it is this: I believe the straight whisky should be sufficiently aged before being allowed sale, and I believe that blended whisky should be put up under proper restrictions, and should be labeled, so that the consumer can identify the one from the other, and I think it should be a very simple matter to draft such a law.

Mr. BURKE. The age would not be produced except in a certain way.

Mr. ALLEN. Straight whiskies are aged in charred barrels and for a certain time.

Mr. BURKE. Before you conclude will you state whether you made an analysis of this soup to see what quantity of benzoate of soda there was in it?

Mr. ALLEN. No, sir. We do not examine for the quantity, because we only prosecute on finding it there, and the other is not necessary, and as we have necessarily a large amount of things to analyze we only analyze for the presence of the article and not for the quantity.

Mr. TOWNSEND. When you have a prosecution against a retailer do you give him an opportunity to get to the manufacturer of that product or do you proceed at once?

Mr. ALLEN. When the manufacturer lives out of the State, as quite a number of them do, we report the finding and proceed at once; that is, as soon as the case comes up in the arrangement of our work. Generally three weeks or longer intervene between the first report and the warrant of information.

Mr. BARTLETT. You said you represented the State of Kentucky, and were sent here by the State of Kentucky?

Mr. ALLEN. Yes; the State food department.

Mr. BARTLETT. In what manner was that made known to you, that the State of Kentucky desired you to come before the committee and present your views?

Mr. ALLEN. I will state that personally, as secretary of the National Association of State Dairy and Food Departments and as secretary of the National Pure Food Congress, as a member of the legislative and executive committee of that association, with a knowledge of this work, I have been intensely interested in the passage of a national pure-food law to get at the interstate part of this problem. I discussed with Director Scovell the propriety of appearing before this committee, and he authorized it.

Mr. BARTLETT. That is the organization of Mr. Scovell?

Mr. ALLEN. Yes; the State department of Kentucky.

Mr. BARTLETT. He is the same man who is a member of this board of standards?

Mr. ALLEN. Yes, sir; and one of the fairest and most honorable men who has been engaged in the pure-food work.

Mr. RYAN. You do not believe anything ought to be enacted in the way of legislation that would be prejudicial to the bottlers of blended whiskies?

Mr. ALLEN. I do not believe any legislation should be enacted prejudicial to any product. I believe both whiskies should be put up under the laws of hygiene, and so labeled that the consumer can identify either and tell one from the other, and I believe it possible to do that, and I believe that quite a little of a fight has been made to confuse this purpose.

Mr. RYAN. You being from Kentucky, I thought that you would know something about whiskies.

Mr. ALLEN. When you come down to the honest label, it is so fair and so practicable that there is no dispute about it, and can be none. And have you here anybody before your committee disputing that? No. But if you enforce the law a little while and see the profits that

people make by direct misrepresentation in their products you would understand that they can not come before you and discuss that issue.

Mr. RYAN. You would not take it that the label "bottled in bond" would be a guaranty of purity? That would be an absolute guaranty, would it not?

Mr. ALLEN. I would take the label of the bottling-in-bond law to mean this: That a distiller had made whisky with the secondary products left in; had put that whisky in barrels and had charred it; had kept it there four years; had, while still under Government supervision, reduced it to 100 proof; had added no other flavor, no other color; had bottled it under Government supervision; the Government had put a stamp over the cork reading, "This whisky is so much proof; it is made in such and such a State and district, and is made by such and such distiller."

Not being able to add any flavor to that whisky he must necessarily get the best materials he can, and he must make it in the best way, because he must produce such secondary products in that whisky as will bring about a flavor which will at once appeal to the people to use that whisky. And so that stamp identifies a certain class of whisky. The man who blends or mixes whisky should be put under exactly the same restrictions. We have a lot of straight whisky that is sold at one or two years old. I believe this should be stopped. I do not know much about it, but from what I do know I do not believe straight whisky one or two years old should be allowed to be put out. It should be sufficiently ripened, and the revenue people say that the time required to properly ripen whisky is four years; it may be longer.

Mr. RYAN. The law requires that whisky can not be bottled in bond unless it is four years old.

Mr. ALLEN. Yes; all of this was taken up in the whisky trust investigation by Congress, and was thoroughly discussed, and I think you will find your records full of excellent information on this subject—why the bottling-in-bond act was passed, and what it was intended to accomplish.

The act is optional, and an optional act can not be enforced without bringing up a trade controversy. Whole whisky interest should have a law to control all adulteration and misbranding, because I believe when you purify liquors you have eliminated 50 per cent of the problems attending their consumption.

Mr. BARTLETT. You say you were the secretary of the Pure Food Association for some time?

Mr. ALLEN. I am, still.

Mr. BARTLETT. You have been for some time?

Mr. ALLEN. Since 1902.

Mr. BARTLETT. You were at St. Louis, then?

Mr. ALLEN. Yes.

Mr. BARTLETT. They expected to cooperate in this bottled-in bond whisky matter as a pure food product, did they not?

Mr. ALLEN. They included that—the committee did—an exploitation or illustration of an act of Congress in their exhibit, and if you will let me state along that line—

Mr. BARTLETT. You did exhibit as an example of pure whisky this bottled-in bond whisky as a part of the exhibit of the pure food commissioners, did you not?

Mr. ALLEN. Yes.

Mr. BARTLETT. Made an exploitation of the bottled-in bond law?

Mr. ALLEN. Yes; an exploitation or illustration of an act of Congress.

Mr. BARTLETT. This is an exhibit made by your association?

Mr. ALLEN. Yes.

Mr. BARTLETT. Did you personally have that under you?

Mr. ALLEN. I personally had charge of that, and did it at the instance of the executive committee.

Mr. BARTLETT. Do you know whether they got any compensation?

Mr. ALLEN. The expenses of the bottling-in-bond exhibit were paid by the firms who exhibited their product. The plans of the exhibit were approved by the officials of the fair, and all facts connected with the exhibit were made public.

Mr. BARTLETT. Do you know the amount of it?

Mr. ALLEN. Yes; \$3,400, receipted for to the distillers and spent by vouchers which have been audited and O. K.'ed by the association.

Mr. BARTLETT. Yes.

Mr. RYAN. Is that the reason there was no blended goods exhibited there?

Mr. ALLEN. This was the situation: We took a law that the Government had passed and brought the interests of rectifiers which have been preventing national pure-food legislation for several years out into the open, to where they must admit some kind of legitimate control, and we made the exhibit for the purpose of putting the dormant bottling-in-bond law into practice. I believe that the bottling-in-bond law is a good law for straight whisky, but it has nothing to do with blended whisky, and I believe that Congress owes it to the people to come forward and put blended whisky under control, and both should be made as pure as possible and honestly labeled.

Mr. RYAN. It looks, from your exhibiting just one class of whisky, as though you are partial to the straight whisky?

Mr. ALLEN. No; not partial to a class of whisky. The bottling-in-bond law is the only act of Congress passed for the purpose of identifying whiskies to the consumers. If there had been other laws, we would have illustrated them. This exhibit did great good to the pure-food cause, the agitation, everything that came out of it. The display of the samples of adulterated foods in their original cans and labels and the illustration of the United States Government bottling-in-bond law helped to bring the subject before the country. It is now before your committee for an honest settlement, and the country is entitled to it. That is all we food commissioners want to-day.

STATEMENT OF MR. A. H. VAN GORDER.

(The witness was sworn by the chairman.)

The CHAIRMAN. Where do you reside?

Mr. VAN GORDER. Cleveland, Ohio.

The CHAIRMAN. What is your business?

Mr. VAN GORDER. My principal business is that of a wholesale druggist, but I am particularly interested here to-day in the manufacture of fruits for use in soda water. We prepare fruits for the use of the soda-fountain dealer and in flavoring his soda water. We operate

that part of our business under the name of the Cleveland Fruit Juice Company.

The CHAIRMAN. You appear here in that interest?

Mr. VAN GORDER. I appear here as a manufacturer of those products and also as representing an association of like manufacturers, some ten or twelve in number, who represent the principal interests of the United States in that line.

The CHAIRMAN. Proceed, if you please.

Mr. VAN GORDER. I will endeavor to show in a very few moments why we think that our goods can not be successfully used by the soda-fountain dealer without the use of a small amount of preservative, and in some cases the use of harmless colors.

About fifteen years ago we, as wholesale druggists, began to put up a line of fruits for the use of the soda fountain. You will understand that the soda fountain is found to-day in a great many drug stores, and for that reason we became interested. We were then putting fruits up in bottles, sterilizing them, putting them up just as a housewife will put up her fruits in her quart Mason jars. Previous to this time the soda fountains were supplied with extracts which at the best only simulated the fruit flavors.

I think I state it conservatively when I say that to-day any one of our well-settled States will consume more soda water than the whole United States did at that time, and in our opinion the great growth of this soda-water industry is due to the improved quality of the fruits which our manufacturers offer to the soda-fountain dealer. Before our attempts to improve our fruit products for flavoring we simply sterilized them and let the dealer prepare his fruit sirups from these quart bottles of the juices which were sent out. We found that in that way we did not get the full flavor of the fruit. We started experimenting in what is known now as the cold process of preparing these fruits, which simply consisted of heating the fruits sufficiently to melt or dissolve the sugar which we added, and upon which we depend mostly for the preservation of the fruits, with the addition of a small amount of preservative. I presume within fifteen years we have gone through the whole line of preservatives, and it has finally gotten down now to using a small amount of benzoate of soda. There are two reasons why we think this preservative is necessary: First, to preserve the delicate quality of the fruit, which is destroyed if this fruit is sterilized sufficiently, that is, if sufficient heat is used to kill all the germs; and, secondly, the necessity for having some way of keeping this fruit after it is opened, on the counters and in the fountains of the soda-water dealers, so that it will not ferment.

Now, it is true that the soda fountain business has increased very greatly, and because of this fact we think we have some reason to ask that you protect our part of the business by allowing the use of a modicum of this preservative. We have been experimenting and doing a great deal of work and have been able to prepare these fruits so that a very small amount of preservative is sufficient.

Mr. ESCH. What is the per cent?

Mr. VAN GORDER. Let me explain how we market our product. We put what are called juices, or perhaps concentrated sirups, in gallon jugs, and our whole line of crushed fruits, as they are called, are put in half-gallon jars. This sirup when it is taken by the soda-fountain dealer is let down with from 3 to 4 or 5 pounds of rock-candy sirup.

In this concentrated product which we send out we do not use over one-fourth of 1 per cent of benzoate of soda. When this product is reduced in this way and reaches the consumer, the man who drinks the glass of soda does not get more than one part in ten or twelve hundred, which is, of course, an infinitesimal dose.

We have repeatedly experimented in sending out products to the trade which have no preservative, and we always get our goods back, with the loss of the expense of sending them out and preparing the goods, because while we can put the goods up so that they will keep until they reach the hands of the consumer—at the loss of some of our flavor, of course—the consumer will not take the pains to, and he is not equipped so that he can, keep a quart bottle or a half-gallon bottle so that it will last while he is selling it out.

Then, as to the matter of color, there are a few, not very many, of our products—a small proportion of our products—to which we find, in our opinion, it is necessary to add sufficient color to restore them to their original appearance. Take the strawberry, for instance, that will get brown after it has been put up in a very short space of time. We can not keep the original color, and we have been in the habit of using sufficient of vegetable color to restore that appearance, so that when the goods are drawn they have the characteristic color of strawberries.

The CHAIRMAN. What coloring do you use for strawberries?

Mr. VAN GORDER. We use cochineal for strawberries, which is a vegetable color.

Mr. ESCH. The insect.

The CHAIRMAN. What proportion of this sugar sirup would you have to use as a preservative?

Mr. VAN GORDER. And not use any other preservative?

The CHAIRMAN. Yes.

Mr. VAN GORDER. Simply to use sugar and depend upon sugar?

The CHAIRMAN. Yes; for practical commercial purposes, what percentage?

Mr. VAN GORDER. I can not say the exact percentage of sugar, but it would have to be simply boiled down and reduced to the consistency of preserves in order to preserve it.

The CHAIRMAN. In this material that you send out, suppose you had the same quantity of sirup that the retailer puts in it; would that keep it?

Mr. VAN GORDER. No, sir; that would hasten the fermentation. That is one reason we send it out in the concentrated form, and another reason is on account of the cheapness. It would cost too much to send the sirup out, because a retailer can make his own sirup.

The CHAIRMAN. You say that the retailer adds four or five parts of sirup to one part of the commodity that you send to him?

Mr. VAN GORDER. Yes, sir.

The CHAIRMAN. And that keeps, does it not?

Mr. VAN GORDER. No, sir; that will not keep if we prepare it without this preservative.

The CHAIRMAN. It will not keep?

Mr. VAN GORDER. No, sir; that will ferment in a very short time; and you understand that, even as we prepare it, they have to take all the pains they can to keep the article cold and care for it to prevent even that from fermenting; and we are at a daily loss in taking back

goods which the soda-fountain man claims have spoiled on his hands. We simply take them back because they are our customers, not because we are accountable for that; because the goods as they prepare them will spoil unless the retail dealer uses that caution.

Mr. RYAN. Does he ever add any preservative—the retail dealer?

Mr. VAN GORDER. I do not know. Of course if he did he could keep his goods indefinitely, if he used enough; but my impression is that they treat the goods fairly as regards preservative, and I do not think that as a rule they are addicted to adding preservative.

The CHAIRMAN. How long will those goods that you send out with one-fourth of 1 per cent of preservative keep under ordinary circumstances in the summer time?

Mr. VAN GORDER. They practically will keep indefinitely until after they are opened. After they are opened it depends on conditions. The conditions may be such that they will ferment on the second day after they are opened, or the conditions may be such that they will keep a week, or two, or three weeks.

The CHAIRMAN. How do you prepare these goods of yours? Take, for instance, pineapple. Is that sirup that you send out made entirely from the pineapple?

Mr. VAN GORDER. We select the best pineapples that we can find. The way we are equipped to manufacture from pineapples is this: We use quite a large quantity every day, and we arrange for direct car-load shipments from Baltimore, from the Bahama pines. We keep track of the shipments as they come in from the Bahamas, and the cars are sent right up to us, and we manufacture them as soon as they arrive.

With regard to strawberries we have learned that a certain variety of berries gives a better flavor than others, so that we are now furnishing the strawberry plants to farmers, and I speak in this for our own concern when I say that we have hundreds and hundreds of acres now under cultivation, having contracted with the farmers, giving them a five-year contract, agreeing to take the berries—all the berries they can produce—on a certain number of acres, at a stated price for the next five years.

The CHAIRMAN. In making these sirups you have no common basis, have you, that you use indifferently in the manufacture of your list of fruit juices?

Mr. VAN GORDER. In the matter of strawberries, it simply means—

The CHAIRMAN. It is all strawberry?

Mr. VAN GORDER. A certain amount of strawberries, a certain amount of sugar, a certain amount of preservative, and then our manner of manipulating, of heating, and putting them up, gives the finished product.

The CHAIRMAN. So that each one is made from the fruit that it purports to be made from?

Mr. VAN GORDER. Yes, sir.

The CHAIRMAN. There is no common basis which you use indifferently for all of them?

Mr. VAN GORDER. No, sir; we make them from the fruits. We have the same contract with farmers with regard to the red and black raspberries, and so with cherries. We have hundreds of acres of cherries under cultivation just for us.

Mr. ESCH. Are aniline dyes used for coloring these juices?

Mr. VAN GORDER. As far as our business is concerned, they are not.

Mr. ESCH. You use the insect?

Mr. VAN GORDER. Yes; we use cochineal. Now, I should appreciate it if this committee could understand that our business differs from the business that purveys its goods for table use. It should, in our case, come under more of a condimentary way, the same as candies. We none of us hesitate to eat candies that have some coloring in them, and the amount of coloring which one would get in the soda water is no greater than he gets in eating the candies; and as I understand it, all high-grade candies are colored with harmless colors, just the same class of colors we use. It is not like sitting down to the table and making a meal or a dessert off of our products as we send them out. In order to get a full dose of benzoate of sodium in drinking soda water flavored with our products, one would have to take 25 or 30 or 40 quarts of the fluid. So that you are running no risk from that standpoint if you except us in this bill.

The CHAIRMAN. Would there be any objection on your part to having your product labeled so as to show what it contains?

Mr. VAN GORDER. We are doing that now, Mr. Chairman.

The CHAIRMAN. Does your label show the preservative that you use?

Mr. VAN GORDER. Yes, sir.

A few years ago there was trouble in Connecticut. I think the first trouble we had with the State laws was in Connecticut. They interdicted the use of color, and we undertook to send some goods in there without either of these two articles. The soda-fountain people refused to use them, and we soon got an understanding with the commissioner which allowed us to use these preservatives and the color by putting the label on the bottle showing what they were. We have had the same trouble with some of the other States, and in one or two instances we have simply withdrawn our goods and taken up everything we could find; and some of the other manufacturers have been obliged to do the same thing. The soda-fountain people found they must have these goods, and they themselves got the commissioners interested to such an extent that by labeling our goods and using the required amount, or the minimum amount, the commissioners have allowed us to go back again into the States. The commissioners are confronted with the law which prohibits the use of preservatives, in some instances, so that they have had to make different rulings simply to allow these goods to be used for the soda-fountain people.

I wish you could appreciate the tremendous strides this business has been making in the last five years; and while the manufacturers of soda-fountain apparatus have helped along a great deal in making it possible to serve a large number of customers and to keep these products icy cold, which conserves the flavor, I claim, and I think I am right, that this great increase is due to the improved flavors which the manufacturers are enabled to give to the consumers.

Mr. BURKE. Is there anything in the way of a substitute that is manufactured that is sold for soda-water sirup other than from the fruit itself?

Mr. VAN GORDER. Before we got to making fruit flavors in this way most of the fountains were supplied with sirups made from artificial things which simply simulated the flavor in a very poor way, of course.

Mr. BURKE. That does not quite answer my question. Are there manufacturers engaged in manufacturing an article that comes into competition with what you manufacture that is made from something other than the fruit?

Mr. VAN GORDER. Yes, sir; there are some manufacturers of that sort. But we have so taken possession of the market that their outlet for that class of goods is principally among these Greeks at the corners of the streets where they sell cheap goods.

Mr. ESCH. What is the extent of your industry?

Mr. VAN GORDER. I am sorry that I am not able to give you statistics; but I should say the sale of our products runs up into the millions annually. We ship our products to all the States this side of the Rocky Mountains, and through the wholesalers, through whom we handle this product, we ship to others.

Mr. ESCH. Are there any like concerns in the other States?

Mr. VAN GORDER. Yes, sir; there are some six or eight who are fairly prominent.

Mr. BURKE. I presume you are aware that we are now considering the bill known as the Hepburn bill?

Mr. VAN GORDER. Yes, sir.

Mr. BURKE. Have you examined that bill—the provisions of it?

Mr. VAN GORDER. Not sufficiently to talk very intelligently upon it.

Mr. BURKE. I mean as to the subject in which you are interested?

Mr. VAN GORDER. Yes, sir.

Mr. BURKE. What changes, if any, would you suggest in the bill that would be necessary to protect your business?

Mr. VAN GORDER. Simply allowing the use of a small amount of preservative. I am not particular what kind of preservative you decide upon, but, as I say, we are now using benzoate of sodium. But we could adapt our business to any one of them, because, with the improved facilities with which we now work, we make these goods practically sterile when they leave us, and only a small amount of this preservative is necessary.

Mr. BURKE. You think that the bill ought to provide that certain preservatives should be used up to a certain quantity?

Mr. VAN GORDER. Yes, sir.

Mr. BURKE. What would that be—of benzoate of soda?

Mr. VAN GORDER. One-fourth of 1 per cent would be sufficient for all our purposes.

Mr. ALLEN. Might I be permitted to say just one more word, Mr. Chairman? There is just one other point, and it will not take me a minute.

STATEMENT OF MR. R. M. ALLEN—Continued.

There is just one point on the question of publicity. The question which Mr. Lannen brought up this morning is one with which we have had some experience in Kentucky. His argument was that publicity should not be given to adulterations until final judgment had been rendered by the court.

Mr. LANNEN. Final conviction.

Mr. ALLEN. Final conviction. That is absolutely impossible. Why? Because, immediately you report an adulteration it becomes public, so far as the press is concerned, and is published all over the country,

and, so far as that is concerned, a man can analyze a product and find an adulteration in it and publish it without doing it officially. It is impossible to stop publicity until the final adjudication of the case, because it is subject to publication as soon as it becomes a public record.

(At 3.20 o'clock p. m. the committee adjourned until to-morrow, Friday, February 23, 1906, at 10.30 o'clock a. m.)

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Friday morning, February 23, 1906.

Committee called to order at 10.40 a. m.

STATEMENT OF R. M. ALLEN—Continued.

The CHAIRMAN. Are there any gentlemen who desire to be heard?

Mr. ALLEN. I spoke to you a few moments ago about a resolution relating to standards which you stated I might present.

Mr. Townsend, I would like to say that the attitude of the State dairy and food commissioners toward the official standards, the standards which have been promulgated by the Secretary of Agriculture—I believe you asked me yesterday if our committee was not meeting in Chicago. In the Chicago Daily Tribune of Wednesday, February 21, 1906, I find the following resolution:

Dr. Richard Fisher, State analyst of Wisconsin, brought out the following resolution, which was unanimously adopted:

"Whereas a report has gone out that the food standard committee of the Interstate Food Commissioners have repudiated the standard adopted by the Department of Agriculture and that we are opposed to the passage of the Hepburn bill, both of which have received the tentative sanction of the national association at the St. Paul and St. Louis meetings: Therefore

Resolved, That we do hereby publicly repudiate and deny the said report."

Mr. BURKE. I would like to ask you one question, as to the law in Kentucky in regard to patent medicines.

Mr. ALLEN. We have no law. We have a disgraceful state of affairs in Kentucky in that respect. We require that the physician shall pass an examination; that he shall be subject to the board of control—the board of health; that he shall practice medicine under certain regulations; that he shall make his prescriptions under certain regulations, and the drug stores shall fill them under certain regulations; but when it comes down to the bottom of that act it exempts patent medicines.

Mr. MANN. You mean proprietary medicines.

Mr. ALLEN. Yes. Some one of the members of the house and the senate in the legislature now in session had up the question of publishing the formulas on patent medicines, and the Louisville Times contained an editorial two or three weeks ago in which they raised this point, that unless they should publish the formulas all over the United States, it would put the patent-medicine industry in Kentucky in a place where it could not compete with the patent medicine industry in Indiana or Illinois, because they could ship their patent medicines direct to the people of Kentucky through the advertising in the newspapers, and that our medicine industry in Kentucky would be dis-

criminated against. They estimated that the publication of the formulas would cause a loss of some \$4,000,000 in the State.

Mr. TOWNSEND. You say, as I understood you, that you have been connected with prosecutions under the food laws?

Mr. ALLEN. I have had charge of the executive work.

Mr. TOWNSEND. I suppose it happens in your State, as it does in all others with which I am familiar, that frequently you have several complaints against the same article, on the sale of the same article, against the same individual. For instance, if he is selling vinegar—we will take that case—you may have six or seven charges against him, or more than one. That has occurred in your experience, has it not?

Mr. ALLEN. It will be this way: A manufacturer, we will say, puts up a spirit vinegar, colored, which he labels as cider vinegar. We take up samples, we take them up from this dealer and that dealer—say in twenty instances over the State. There are twenty prosecutions that we will direct against that one thing.

Mr. TOWNSEND. Suppose you start one of those before a jury, the first one, and you get beaten by the jury. Do you then end the cases against him?

Mr. ALLEN. We have tried in Kentucky some three hundred cases, and have only had two verdicts of not guilty on points that we did not dismiss in other cases. I do not know why we have had that unusual success, excepting that we never take anything to the courts but that which we are absolutely certain of in regard to the evidence. So we have never had an instance of which you cite.

Mr. TOWNSEND. You are not familiar with any such instance?

Mr. ALLEN. If the court was to decide that we had brought a wrong prosecution, or a wrong complaint, naturally we would amend our complaint; or if the court should point out and satisfy us in that particular instance that we were wrong on the proposition, naturally we would not prosecute all of the others.

Mr. TOWNSEND. Does the court do that, or is that a jury question?

Mr. ALLEN. That would be a jury question, naturally.

Mr. TOWNSEND. It is possible, isn't it, for a man to be acquitted on one charge or complaint, but still be prosecuted the next day, and the next, and the next, and so on, on different complaints?

Mr. ALLEN. If they have sold that article at different times.

Mr. TOWNSEND. That would be true even though he was acquitted on the others. He could still be tried over and over again.

Mr. ALLEN. Unless the court should quash the other indictments.

Mr. ADAMSON. Do you know any reason why, in putting up food substances, food and drink, the manufacturer should object to being required to place upon the parcels a statement of the elements contained in those packages?

Mr. ALLEN. None whatever. The supreme court of Wisconsin has laid down a decision in which it states that no man has the right to keep secret the composition of substances which he offers the people for consumption. If a man has a system of putting up a product which has no adulteration or harm in it or fraud in the label, I don't see any necessity of giving the formula away.

Mr. ADAMSON. If you place on every package a statement of its contents, then in every State or Territory the people who see that will know whether they want it or not.

Mr. ALLEN. Yes. Take tomato catsup. One man may put in so much spice, so much vinegar, so much tomato, and so on. We do not care whether he states how much vinegar, or how much spice, or what the spice is; but we would like to know whether it is tomato catsup or pumpkin pulp; whether it is made from fresh tomatoes or stored pulp, and whether it is artificially colored, or is preserved with benzoate of soda or other antiseptics.

Mr. ADAMSON. I believe you said that you are a lawyer as well as connected with the pure-food regulations. Have you had considerable observation and experience in the prosecution of cases?

Mr. ALLEN. Yes, sir.

Mr. ADAMSON. Generally, I understood you to say, that your State courts administer your laws faithfully and you secure convictions?

Mr. ALLEN. Generally confessions.

Mr. ADAMSON. The same thing.

Mr. ALLEN. Yes, sir.

Mr. ADAMSON. Do you think that it would be easier or more certain or efficient to burden the Federal courts of Kentucky with that business rather than the State courts?

Mr. ALLEN. I think that Kentucky is one of the States which has tried to enforce the pure-food law, and in enforcing it we do our best. The products from Indiana, Ohio, Illinois, and Tennessee continually get into the hands of our retailers.

Mr. ADAMSON. The way Federal courts and juries are constituted, do you expect any more efficient service from them than you get from the home courts?

Mr. ALLEN. No; only when we find that the fraud has been committed in interstate commerce we can not prosecute the guilty manufacturer.

Mr. ADAMSON. If a man sells one thing and delivers another, he has committed a fraud which you can reach under your police powers, and the interstate commerce has nothing to do with it.

Mr. ALLEN. You would prosecute in some instances an innocent individual. The person who adulterated the article can not be prosecuted if it is shipped from Cincinnati, for example, and you would be unable to hold the guilty party responsible. When you can not get at the guilty party you can not enforce the law with justice.

Mr. ADAMSON. I think you are mistaken about being unable to find him in Cincinnati.

Mr. RICHARDSON. You say that in the enforcement of the law in Kentucky you come in contact with obstacles due to interstate commerce that cripple your service, and that you need a national food law.

Mr. ALLEN. That is what I was trying to bring out. If a man in Cincinnati who has no trade reputation—you will find lots of them—puts an article of food into the State of Kentucky and sells a retailer, we take the retailer up, and while he is innocent—

Mr. ADAMSON. The liquor man is in the same condition who buys unbroken packages of liquor and has them sent into a prohibition State. He violates the law.

Mr. ALLEN. He can proceed against the man who sold it to him by a civil action.

Mr. ADAMSON. He should know who he is dealing with. Have you thought of the other point? If you put all the details of this work

upon the Federal courts, have you thought about how it would burden them in that part of Kentucky?

Mr. ALLEN. We will not put all the details on them, because as soon as the Federal inspection begins you will find that the article will be shipped back unlabeled in Kentucky. They will ship the different ingredients in Kentucky and mix it there, and we can get at it there.

Mr. ADAMSON. You don't contend that there is any fraud that you can not get at in Kentucky. You can punish any fraud there?

Mr. ALLEN. We can not punish under our police powers a man who commits the fraud and lives in Indianapolis. In order to reach all of the adulteration put out by one foreign firm we would have to punish perhaps 4,000 dealers in Kentucky to break it up.

Mr. ESCH. Did I understand you correctly yesterday when you stated that you thought that pure food could be secured by simply printing the ingredients upon the labels, and that there would be no necessity therefore for fixing the standards?

Mr. ALLEN. You necessarily must have some standard for evidence; a standard is nothing but evidence. Now, the man comes up and says: "I have a product which I want to label. It contains so much of this and so much of that, and I am asking you how I can label it so as to comply with your law." If he labels it glucose, you must know what glucose is from compiled analyses. If he labels it honey, you must know what honey is. If he labels it apple jelly, you must know what apple jelly is. So in putting the label on the product you must adhere to the general meaning which is understood with the public when it sees those terms on the package.

Mr. ESCH. The standard would only go to the constituent element, not to the finished product.

Mr. ALLEN. I think you are more or less right about that.

Mr. TOWNSEND. How are you going to get at what the public accepts as a standard, or will accept?

Mr. ALLEN. The public for years have been getting butter. Let us go over the United States, take up butter, and analyze it—analyze it from 10,000 sources—and find out what the average butter is. When you have determined the standard you have that to guide you. Take the honeys. You analyze it from the different breeds of bees, different blossoms, going over the whole range of honey, so that when you have analyzed the product you know whether it is honey or not.

Mr. MANN. Honey made from buckwheat flowers is an entirely different substance in appearance and taste from the honey made from the linden flowers. How do you fix the standard as to what honey is between those two?

Mr. ALLEN. The polarization of the buckwheat and the linden honey would be practically the same.

Mr. MANN. But the standard gives no conception whatever to the user of the value of the honey so far as eating is concerned, so far as flavor is concerned, or so far as coloring matter is concerned.

Mr. ALLEN. In the honey I think you will find that the element in the buckwheat honey which colors it generally designates it from other honeys. Those are points which the standards have not covered as yet.

Mr. MANN. I do not see how you could fix a standard honey made from natural sources. If you turn bees loose upon glucose, they make honey.

Mr. ALLEN. We would not consider that honey.

Mr. MANN. That is not standard honey, because it is not made from the natural sources of honey.

Mr. ALLEN. Not made from flowers. I would like to say, so far as the label is concerned, that I have great confidence in it, because we have accomplished results in Kentucky that some other States have not.

Mr. TOWNSEND. Would you feel yourself competent to fix standards for foods in the United States?

Mr. ALLEN. Personally I would not without giving the matter further consideration.

Mr. TOWNSEND. Do you know anybody in the State of Kentucky whom you would trust to do that business?

Mr. ALLEN. Professor Scovell is a member of the standard commission, and I would like to tell you just how able he is—

Mr. TOWNSEND. I just wanted to get at a general proposition here.

Mr. ALLEN. When it came to the development of a standard, I do not know any man whose judgment I would rather take than his. He is broad, absolutely honest—

Mr. TOWNSEND. But are they not subject to change?

Mr. ALLEN. Only as the standard itself might be subject to change, only perhaps as information might be brought in from time to time. These standards will change just as the drug standards do and are revised.

Mr. TOWNSEND. Do you know of any case where a man or a commission has promulgated a standard that has afterwards been found to be wrong and that has wrought incalculable injury to manufacturers?

Mr. ALLEN. No.

Mr. TOWNSEND. You do not know of any?

Mr. ALLEN. We try to be right. I think if an official tries to be right before he brings a prosecution, goes into the case thoroughly himself on all sides, he generally will prosecute a just cause.

Mr. BARTLETT. Is it not true that men who are engaged in looking up the violations of law, and trying to find them, generally think that they are right and that the other man is wrong?

Mr. ALLEN. They perhaps would be right.

Mr. TOWNSEND. Just to complete my statement. Now, in order to have an interstate or Federal law on food effective and valuable in the State for the reasons given by you, it should be such a law as is generally recognized as being fair and right. Wouldn't it be best to take all the necessary precautions that those standards shall be just and right to start with? If they are such the State will be more liable to adopt them, will they not?

Mr. ALLEN. Yes; and in that connection you should designate the Secretary of Agriculture, or the Secretary of Agriculture and the Secretary of some other Department, to appoint the men to do this; why? Instead of perhaps designating any particular staff of scientists, you will have appointed from time to time such men as are considered by the Secretary of Agriculture to be competent. I think in cases of that kind you can trust them better; and can trust the Secretary of the Department who stands for something naturally before he is appointed.

Mr. TOWNSEND. So you believe the commission, the advisory commission, appointed by the Secretary of Agriculture, would be more liable to establish standards that would be more generally observed and

accepted by the States and by manufacturers than the Secretary of Agriculture could alone?

Mr. ALLEN. Than he could alone.

Mr. TOWNSEND. Or any other one man alone?

Mr. ALLEN. Yes, sir.

Mr. MANN. You spoke of patent medicines. What do you mean by patent medicines?

Mr. ALLEN. Well, I had in mind at the time the term that has been used publicly. That a man who puts up a remedy and secures a patent on his so-called invention and sells it as a patented or proprietary medicine.

Mr. MANN. Do you know of any medicines that are patented?

Mr. ALLEN. I will have to confess I do not.

Mr. MANN. I think what you referred to here was proprietary medicines. A patent medicine necessarily discloses its formula and process, because that is in the Patent Office, it is patented. You have reference to proprietary medicines in the common acceptance of the term as being called patent medicines.

Mr. ALLEN. Yes, sir; not having that under our State law I am not as familiar with that subject as I am with foods.

Mr. BURKE. I believe you stated you had about 300 prosecutions under your law for violation.

Mr. ALLEN. To be conservatively correct, yes; perhaps more.

Mr. BURKE. What, in a general way, are the natures of those complaints?

Mr. ALLEN. Prosecutions for selling spirit vinegar colored as apple vinegar; prosecutions for selling New Orleans molasses, sorghum molasses, which contain 65 or 70 per cent of glucose, and generally at the price of pure sirups; prosecutions for selling tomato catsup containing artificial color, benzoate of soda, and not so labeled.

Mr. BURKE. Taking those three articles, in what proportion has there been complaint?

Mr. ALLEN. In the case of spirit vinegar, when we first started I might say at least 90 per cent. Now it is about 10 per cent. In the case of sorghum and New Orleans molasses it is between 40 and 50 per cent. We have a hard time changing the per cent of adulteration in sirups. In the case of catsups the color is no longer used, except in some cheap goods. The salicylic acid has gone out, and goods containing benzoate of soda are labeled, and, being labeled, we have no prosecutions against the catsup, excepting the cheap stuff which comes in and for whom no one is responsible.

The CHAIRMAN. In your judgment, should the percentage in the article be stated on the label—the percentage that is used?

Mr. ALLEN. In the case of glucose, for example, if you mix glucose with sorghum molasses, I think the consumer should know that is 70 per cent instead of 10 per cent, as might perhaps be represented. In the case of antiseptics, if they are permitted, it should be regulated as to the very minimum, and that percentage adhered to, although don't understand me as being in favor of preservatives, because I think that we will solve the problem practically, so that we will not need them, and I believe it has been sufficiently proven that they are deleterious to health in long continued uses, even in minimum quantities.

Mr. TOWNSEND. This substance that you were speaking about, this mixture?

Mr. ALLEN. Glucose and molasses; yes, sir.

Mr. TOWNSEND. Which is the cheaper substance, glucose or molasses?

Mr. ALLEN. Glucose; very much cheaper. I can not give you the exact price of glucose, but I would say that it can be manufactured for about 15 cents a gallon.

Mr. TOWNSEND. You are sure about that?

Mr. ALLEN. Reasonably sure of it. Sorghum or New Orleans sirups, of course, can not be manufactured for less than three or four times that per gallon.

Mr. TOWNSEND. So that glucose is put in for the purpose of furnishing a cheaper element in the manufactured product.

Mr. ALLEN. The whole scheme, of course, is to make an imitation, and give it the name of some substance well established with the public, so that by giving that name its value will be raised.

Mr. MANN. You do not prohibit the use of glucose with molasses.

Mr. ALLEN. Oh, no; a man can mix them together providing he sells them as such.

Mr. MANN. How can you mark molasses so that the customer knows what he is going to get?

Mr. ALLEN. The barrel in the store has a large sign up around it: "This molasses contains glucose," we will say, "70 per cent."

Mr. MANN. Suppose I go in a store, or send a child, or order from a wagon a gallon of molasses, have I got to go to the store to ascertain whether the sign is up on that barrel or not?

Mr. ALLEN. Yes; and this is an instance where the retailers do impose upon the public, and this is one of the most difficult instances in enforcing the law. The glucose is mixed with the molasses in the first place, just like harmless colors are put in vinegar, for the purpose of disposing of it for a higher price. That is one of the problems in enforcing the law.

Mr. MANN. What I am trying to find out is whether there is any way, in your judgment, by which it can be done under the law. I do not want pure molasses; I want glucose in it—a certain percentage in it. But how could I tell about that; have I got to go to the store and ascertain? Is there any way by which I can ascertain without going to the store?

Mr. ALLEN. The law can demand a label upon your package, and if they send it to you in a jug they should paste on this a label which would say this molasses contains 70 per cent of glucose.

Mr. BARTLETT. Do you want this bill before this committee to prevent that sort of thing?

Mr. ALLEN. Only ship the stuff in Kentucky, so that the Kentucky retailers—

Mr. BURKE. Will you please explain what you mean by saying that food preservatives have generally proven deleterious and harmful?

Mr. ALLEN. Yes; take the German Government. They have decided against boracic acid in meats.

Mr. MANN. Why not take the English Government?

Mr. ALLEN. The English Government—in the English courts, to begin with, there has been no direct legislation in Parliament on this subject. Parliament appointed a committee which went into the subject thoroughly, but for some reason no action has been taken upon that parliamentary report. However, it is but fair to state that the parliamentary commission recommended the use of boracic acid in

certain instances. England must bring her foods from afar—from across the water. She makes few of them. In a few instances they have recommended the use of boracic acid.

Mr. MANN. You understand, in shipping dressed meats abroad, the English require those meats to be preserved or dressed—treated with borax or boracic acid?

Mr. ALLEN. Germany forbids it.

Mr. MANN. The English customers require it. Is there anything to show whether the English, as a whole, are less healthy than the Germans?

Mr. ALLEN. No; but if you will go into the English Government laboratory you will find that they are giving little study to this subject; but if you go into the German Government laboratory you will find that they have given serious, intelligent, and long study to the subject.

Mr. MANN. The best test of the healthfulness of any article is its final effect upon the people. Now, the English people are well known to be great meat eaters. Their dressed meat comes, to a large extent, from this side of the water. It is invariably treated with a preservative—boracic acid or borax. They require it; you can not sell the meat without; they won't take it. Has that injuriously affected their health, so far as you know?

Mr. ALLEN. I have no information on that subject. Of course I have heard that statement, that argument, before, but it is one upon which I have no information.

Mr. BURKE. Do you know of any proofs that the use of benzoic acid in quantity, not exceeding one-tenth of 1 per cent, is deleterious?

Mr. ALLEN. That is considered one of the mildest of antiseptics, concerning which there has been perhaps less investigation than with salicylic acid.

Mr. TOWNSEND. Do you know anything about these experiments that the Department has been making on benzoic acid?

Mr. ALLEN. As we have been in touch with the reports, it has been carried on upon a larger and more extensive scale than any experiments. For example, the German Government experimented on one man. Doctor Wiley took a number of men, secured data from many sources, and arrived at his conclusions from a tremendous amount of work.

Mr. TOWNSEND. When was that completed, the report on benzoic acid?

Mr. ALLEN. I believe that his experiments on that subject have been perhaps the leading experiments in the world. He treated a number of men, and attacked the subject from a large number of sides, and accumulated data about the whole condition upon whom he was experimenting, and after wading through that drew his conclusions. The Doctor would never give a statement about the effect of boracic acid until he had finished his experiments. I remember at St. Paul a Dr. Edward Gudeman, a technical litigant—I believe he calls himself of Chicago—spoke of antiseptics and colors. We were going to pass a resolution at St. Paul prohibiting antiseptics. He said: Gentlemen, don't pass this resolution. Doctor Wiley has not finished his experiments. When he finishes his experiments, we will be willing to go on the side to which his conclusions lead. Naturally when the Doctor has finished the experiment, and it is against the use of preservatives, the

man who puts up the preservatives would try in some other way to establish his right to use it. This is a subject that Kentucky has left largely to the consumer, and the injurious side of this preservative question, in my mind, is not any more important than the practical problem of food preservation; and I would like to cite one instance in that line. A man who represented a preservative company came down to Lexington in 1903, and said he wanted to speak at the food commissioners' convention in St. Paul; that he wanted to prove to us that milk could not be put upon the market without a preservative, and that his preservatives were healthful. I said to that man, "If you have evidence of that kind we want it; if I am wrong I want to change; if you are wrong I suppose you want to know it," and I asked him to come up.

We had on the programme Mr. Gurler, of near Chicago, who has built himself a monument in giving pure milk to the city. When before the convention, I asked the committee to let this man follow Mr. Gurler. Mr. Gurler told about the clean stables, the clean milkers, the clean pails, aeration, cooling his milk, putting it in bottles, and sealing them, and how in doing that he had shipped milk to Paris, and it had kept sweet for a week after reaching Paris; how he had sent it up to the hunting camps, and how he was supplying milk to the city of Chicago without antiseptics. Before he finished a note came up to the desk from the antiseptic man saying that he had been called to the hotel; at the hotel was another note saying that he had gone to Chicago, and that is the last I have ever heard of the argument that a preservative should be used in milk. On the other hand, if there had been dirty stables, no cooling, and so on, formaldehyde would have been necessary to put that milk into Chicago sweet. So that there is a hygienic side to this question which, to my mind, is a very important one.

The catsup manufacturer and the fruit manufacturer have a big practical problem on their hands in gathering all these products from a large acreage in different States and putting them into the cities in wholesale quantities. They have a great big practical problem of food preservation, and one which I think our Government has too long neglected to cooperate with him upon. This problem will be taken up in cooperation with the manufacturers and finally settled.

Mr. TOWNSEND. Are they not anxious to cooperate on that question?

Mr. ALLEN. Every reputable manufacturer is.

Mr. ESCH. I would like to ask just one question. You stated, Mr. Allen, that in Germany the commission reported against the use of boracic acid?

Mr. ALLEN. Yes, sir.

Mr. ESCH. Do you know how much the agrarian movement in Germany against the importation of meats had to do with it?

Mr. ALLEN. I thought of it myself before going there. But after talking with Doctor Smith at the Government laboratory for a couple of hours I was convinced that the laboratory had reported its convictions. In the German climate the conditions are more favorable to food preservation than in the more Southern climates. They have developed food preservation by the ripening process to a greater extent than any other country.

The CHAIRMAN. Mr. Williams would like to make a correction.

Mr. WILLIAMS. It really doesn't make much difference, but in the testimony I gave last week, on page 17, the chairman asked me the

question: "You can not make apple butter without a preservative?" to which I answered: "Not so it will keep." Mr. Richardson, who was sitting right beside me, held up a bottle of preserves and asked me if I understood that there was glucose in that, to which I answered: "Yes, sir." From the way the record reads, and as the chairman was referring to apple butter, it would appear that my answer of "Yes, sir," related to there being glucose in the apple butter.

As that was somewhat misleading, I wanted to get it straight, that is all.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Monday, February 26, 1906.

Committee called to order at 10.30 a. m.

STATEMENT OF DR. HARVEY W. WILEY, CHIEF OF THE BUREAU OF CHEMISTRY, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Doctor Wiley was sworn by the acting chairman, Mr. Wanger.

The ACTING CHAIRMAN (Hon. Irving P. Wagner). Doctor, will you state the extent and character of your general education?

Doctor WILEY. I have had a common school education. Afterwards entered the preparatory department of Hanover College, of Indiana; prepared for college; entered Hanover College and graduated with the degree of B. A.

The CHAIRMAN. Will you now please state your profession?

Doctor WILEY. I studied medicine for three years with practitioners, entered the medical college of Indiana, took a two-years' course, and graduated with the degree of M. D. I afterwards entered Harvard University, passing examinations to the senior class, and graduated from Harvard University with the degree of B. S., having studied chemistry, making that a special study. I afterwards pursued analytical and professional studies in Europe, attending a course in the hospital in Vienna one month, and in the University of Berlin, where I studied pathology under Professor Virchow, perhaps the greatest pathologist that has ever lived; pathological chemistry with Professor Eichorn, and chemistry of foods with Professor Sell, who was at that time chemist of the imperial board of health.

Mr. MANN. How long have you been in the Government service, Doctor?

Doctor WILEY. Twenty-three years on the 9th day of April next.

Mr. MANN. In what capacity?

Doctor WILEY. First, as chief of the Division of Chemistry, and, since that was made a bureau, chief of the Bureau of Chemistry of the Department of Agriculture.

The CHAIRMAN. As I understood you, you have made a special study of physiological and pathological chemistry?

Doctor WILEY. As a part of my medical education and as a part in which I took special interest.

The CHAIRMAN. Have you studied the effects of drugs upon the human system?

Doctor WILEY. I did that to a very large extent in my medical studies, and also especially in my course with Professor Virchow, where the pathological effects of drugs is one of the principal, the essential, things taught.

The CHAIRMAN. Have you conducted any experiments yourself to determine the effect of preservatives and coloring matters on health?

Doctor WILEY. I have, under authority of Congress, and direction of the Secretary of Agriculture, made a very elaborate study of that problem in the past four years.

The CHAIRMAN. Are you a member of any learned society or societies? And if so, please state what and where.

Doctor WILEY. I am a member of a great many societies. I have a list of them, which I will submit.

Following is the list:

American societies.—Honorary member: Franklin Institute; American Brewing Institute. Regular member: American Chemical Society; American Electrochemical Society; American Association for the Advancement of Science; Washington Academy of Sciences; American Medical Association; American Pharmaceutical Association; Society of Medical Jurisprudence; Indiana Academy of Science; Medical Society of the District of Columbia; Association of Official Agricultural Chemists; American Philosophical Society; American Public Health Association; National Geographic Society.

Foreign societies.—Honorary member: England, Federated Institutes of Brewing; Society of Public Analysts. Germany, Association of Technical Sugar Experts. France, Societe d'Hygiene Alimentaire et de l'Alimentation Rationnelle de l'Homme. Regular member: England, Society of Chemical Industry. Germany, Die Deutsche Chemische Gesellschaft; Verein Deutscher Chemiker. France, Association des Chimistes de Sucrierie et de Distillerie de France et des Colonies. International Congress of Applied Chemistry.

The CHAIRMAN. Have you held any office to which you were elected by the scientific men of this country?

Doctor WILEY. I was for two terms president of the American Chemical Society. I have held all of the offices in the American Association for the Advancement of Science excepting that of president and permanent secretary and treasurer. I have been vice-president and member of the council, and secretary of the association.

The CHAIRMAN. Are you connected in any official way with the American Medical Association?

Doctor WILEY. I am a member in good standing of the Medical Society of the District of Columbia and the American Medical Association. I am also a member of one of the most important bodies—of the governing or advising bodies—of that association, namely: The council on pharmacy and chemistry, which advises in regard to all matters of drugs and chemicals which come within the scope of investigation of the American Medical Association.

The CHAIRMAN. What is your official position under the Government?

Doctor WILEY. I am Chief of the Bureau of Chemistry of the Department of Agriculture.

The CHAIRMAN. How long have you held that position?

Doctor WILEY. Since it was created, in 1901. Before that it was known as the Division of Chemistry, and I had been chief of that division since the 9th of April, 1883, up to the time it was created a bureau. I might say there that there was an interval, however, between those two services of about thirteen days, I think, in which I had no official position whatever.

Mr. TOWNSEND. How did that happen; what was there about that?

Doctor WILEY. I was employed to give testimony in a case before the Ohio courts at that time, and I thought that it would be more proper not to accept the office, the new office, until the testimony had been given.

Mr. TOWNSEND. That was in the Arbuckle coffee case?

Doctor WILEY. The Arbuckle coffee case; yes, sir. In that case I was associated with Professor Vaughan, who appeared before you last week.

Mr. BARTLETT. Were you with the prosecution or the defense?

Doctor WILEY. I was connected with the defense.

The CHAIRMAN. You may proceed with your statement in relation to the bill (H. R. 2527). I understand you desire to submit some remarks in relation to some matters which have come before the committee in the hearings.

Doctor WILEY. If you will permit me, Mr. Chairman, in order to save time I have reduced to writing most of the things which I wish to submit to you, as I think I can do it with less expenditure of time in that way.

Mr. TOWNSEND. Doctor, have you made, in the course of the paper which you have prepared, a comparison of the two bills, the Hepburn bill and the Heyburn bill?

Doctor WILEY. Yes, sir; I have.

Mr. ADAMSON. In that comparison do you not include the Rodenberg bill also?

Doctor WILEY. Yes, sir; I do. I have considered all of the bills which are before this committee in a comparative way.

The CHAIRMAN. You may proceed.

Mr. TOWNSEND. Would you prefer that we ask you any questions as you touch the various points or that we wait until you get through.

Doctor WILEY. I should very much prefer that you would ask me questions at any time, and just as they may arise. It does not interrupt me at all. I will try to answer all questions.

THE FOOD BILL.

Mr. Chairman and gentlemen of the committee: At the request of your chairman and in harmony with the terms of the resolution passed by your honorable body, and with the consent of the Secretary of Agriculture, I appear before you for the purpose of summing up the expert testimony which has been offered in the hearings held before your committee during the past fortnight on the pending measure concerning the regulation of interstate and foreign commerce in foods. Numerous expert witnesses have appeared before your body, mostly in opposition to the pending measure, and a few witnesses have appeared in favor thereof. I appear before you not as the advocate of any particular measure, but as an advocate of legislation of some kind controlling interstate and foreign commerce in adulterated and misbranded foods and drugs. I shall support with what influence I may possess any bill which your honorable body in its wisdom may report, although it might not, and probably would not, meet with my entire approbation. I do not believe it is possible to draw any measure of this kind which would receive the unqualified support of all parties. It becomes necessary, therefore, in measures of this kind to keep in view the

principle of the legislation and to regard as of minor importance the various details which may be devised to obtain the end in view.

In the discussion of some of the principal points which have been presented, I wish to be understood as according to each witness the same sincerity, the same desire to present the facts, and the same freedom from bias in interpreting them that I shall hope may be attributed to me. The cause of truth is never hurt by unjust attacks and its citadel never reached by the devious ways of unworthy foes, but it is sometimes weakened by the unguided enthusiasms of its defenders and advocates.

I therefore accord honesty of purpose and sincerity of effort to those whose contentions I feel impelled to resist. I desire to point out wherein I think they have fallen into errors of statement followed by fallacious reasoning leading to wrong conclusions. I want to point out how they have misunderstood the efforts which have been made to ascertain certain facts relating to the effect of preservatives, coloring matters, and other substances added to foods on health and digestion; how they have misinterpreted the purpose and scope of the food standards which have been proclaimed by the Secretary of Agriculture in accordance with an act of Congress, and have, as a result of these erroneous views, created what seems to them a demon of future dangers, but which is nothing more than a phantom of a perturbed imagination.

In doing this I shall speak frankly and freely, without any bias or rancor, without any feeling of resentment for the many denunciations and anathemas which have been published all over this broad land and in Europe during the past two years.

I hope you may not conclude from the necessary trend of my argument that I oppose all use of preservatives and coloring matters in foods. On the contrary, there are doubtless often conditions when the use of preservatives is indicated. In countries which are unable to produce their own foods, as for instance England, on journeys to distant or difficultly accessible places, such as mines and logging camps and long journeys on the sea, and in other exigencies, preservatives may be indicated. I also think that the consumer who prefers them should not be denied that preference. My argument, therefore, applies to the usual conditions which obtain in this country and especially to the apparent fact that the great majority of our people seem to prefer their food untreated with noncondimental preservatives.

As it has appeared to me from listening to a part of the testimony and reading a part thereof, that the character of the opposition to the pending measure may be described as follows:

- (1) Opposition to the cardinal principles of the bill.
- (2) Opposition to some of the prohibition principles of the bill.
- (3) Opposition to the method of enforcing the bill.
- (4) Opposition to the officials who may be called upon to enforce the bill.
- (5) Opposition of special interests engaged in certain industries which apparently may be affected to a greater or less extent by the provisions of the bill should it become a law.

I will begin by a statement of the grounds of the opposition of the first class of objections. This opposition has not been brought out by any of the witnesses who have been called upon to testify; but is based upon broad Constitutional grounds and is of a character to command

profound respect and careful consideration. I refer to the views which are held by many distinguished and earnest men to the effect that the cardinal provisions of the bill are unconstitutional. This is a matter, therefore, which does not call for any further consideration on my part.

The second class of objections to the bill: The prohibition principles of the pending bill consist in the elimination of harmful and injurious ingredients which may be added to foods. I may say, and the statement is rather a broad one, that there is no opposition to such a prohibition, as no one has advocated, in so far as I have been able to find in the testimony, a permission to add harmful, deleterious, or poisonous substances to foods.

Mr. BARTLETT. You used the words harmful, deleterious, or poisonous. Do you mean to say that in the treatment of this subject the things that are not harmful, deleterious, or poisonous ought to be permitted to be added to food.

Doctor WILEY. I would not say that at all.

Mr. BARTLETT. That is exactly what I understood from you.

Doctor WILEY. I want to make that very plain. I would not advocate the addition of a substance to a food simply because it was harmless, because it may have no use in food at all.

Mr. BARTLETT. Take the matter of preservatives that are not harmful, deleterious, or poisonous. They would not be objectionable as a preservative?

Doctor WILEY. As a preservative, no.

Mr. BARTLETT. I don't think you ought to use anything in food excepting to keep it.

Doctor WILEY. I don't think we disagree at all on that point.

Mr. BARTLETT. You and I disagree mainly on the first proposition.

Doctor WILEY. I recognize that, Mr. Chairman, and some of my best friends, I am sorry to say, have the same view as held by my distinguished friend, Mr. Bartlett. For instance, one of the Senators who voted against the bill is one of the dearest friends, personal friends, I have in the Senate; but he voted on conscientious scruples, and that is the kind of a position which I regard as worthy of the most profound respect.

The objections have rather lain against the possible decisions of the courts in such matters, and especially against the method of collecting evidence for the prosecution. It is, of course, self evident that no prosecution could be brought under these prohibition provisions unless some one should certify that any given added substance was harmful, deleterious, or poisonous. The opposition, therefore, to this provision of the bill has voiced itself in an argument that the committee should insert prohibitive provisions in the bill against this prohibition. Plainly stated, the contention has been made that the Congress of the United States should declare by act that certain substances in certain proportions are not harmful, deleterious, or poisonous substances.

The only expert testimony which has been submitted on this question, which is worthy of any consideration by your committee, is that which was offered by Professor Kremers, of the University of Wisconsin, Professor Kedzie, of the Agricultural College of Michigan, and Professor Vaughan, of the University of Michigan. The high character and attainments of these experts entitle their views to the most profound and respectful consideration.

The wide distribution of benzoic acid in vegetable products, as described by Professor Kremers, is well known to physiological and agricultural chemists. He says that in the destruction of certain proteids in the human economy benzoic acid is formed, which is then oxidized into hippuric acid. There is no evidence that I have been able to find to show that hippuric acid may not be formed from the benzol radical without its passing through the benzoic acid state, but this is of little importance, because even if benzoic acid should precede the formation of hippuric acid it could only exist in the most minute quantities and for a relatively very short period of time. Hippuric acid is one of the natural toxic or poisonous bodies produced in catabolic activity which, like urea and other degradation products of proteids, must be at once eliminated from the system to avoid injury. Uremic poisoning at once supervenes on the suppression of the excretive activities of the kidneys, and unless this condition is removed death speedily results.

Mr. ADAMSON. You heard what that gentleman who appeared before the committee stated in regard to cranberries; is that correct?

Doctor WILEY. Yes, sir.

Mr. ADAMSON. Do you consider cranberries harmful in reasonable quantities?

Doctor WILEY. I did not say anything about their being harmful in reasonable quantities.

Mr. ADAMSON. Then do I understand that if you add the same amount of exactly the same kind of acid to another food that it would make it more harmful than cranberries?

Doctor WILEY. Yes, sir.

Mr. ADAMSON. Why?

Doctor WILEY. Because you are adding a substance which produces a degradation product which is highly poisonous.

Mr. ADAMSON. In adding that amount to another food substance, which had none before, where is the difference?

Doctor WILEY. That is what I am endeavoring to state here. That effect does not occur to such a degree when nature puts deleterious substances in foods, as she does in almost every food.

Mr. ADAMSON. When nature puts it in it is not harmful, but when a man puts it in it is?

Mr. MANN. Has anybody ever made a test of living on cranberries for six months or a year?

Doctor WILEY. Not that I know of; I think it would be a very difficult thing to do.

Mr. ADAMSON. Did I understand you to say that cranberries were harmful?

Doctor WILEY. I don't think they are as used occasionally except as I shall explain further on. I think they would be more nutritious if they had no benzoic acid in them.

Mr. ADAMSON. If cranberries are not injurious with that amount of acid in them, how does the same amount of acid added to other foods, containing no acid, make that food more deleterious to health than the cranberries?

Doctor WILEY. I will show you, Mr. Adamson, further on.

Mr. ADAMSON. The Lord put it there in one case and the chemist put it there in the other in the same amount exactly.

Doctor WILEY. I will show you further on by experimental data

which I will lay before you that if you put in foods the same quantity or less than the Lord puts in cranberries that you produce a most distinct injury.

Mr. ADAMSON. Then a chemist can not apply the same substances that nature does with the absence of harm.

Doctor WILEY. I will show you before I get through with this paper that synthetically, of everything made by man, almost nothing has the hygienic value of that made by nature.

Mr. ADAMSON. Then the less we have to do with chemicals in foods the better.

Doctor WILEY. If you put chemicals in them, no doubt that is true. No chemist can ever imitate nature's combination.

Mr. ADAMSON. What is the difference between a physiological chemist and an analytical chemist?

Doctor WILEY. Every physiological chemist is an analytical chemist. A physiological chemist is a chemist who studies the process of metabolism, which means the course which the nourishment of a plant or animal takes from the time it enters the body until it is excreted. There is no difference in the chemistry; it is a difference in the subjects studied.

Mr. ADAMSON. Physiologically it includes the other.

Doctor WILEY. It always implies the analytical. A man must first of all be a chemist before he can be a physiological chemist, or an agricultural chemist or a manufacturing chemist. The analytical chemist, as such, has only to do with the composition of bodies. The physiological chemist, as such, has not only to do with the composition, but with the functions and changes which those elements undergo in passing through a living organism and with the living organism itself.

Mr. TOWNSEND. As I understand you, Doctor, your objection to the use of benzoic acid in the amounts testified to by Doctors Vaughan and Kremers was that it was imposing an extra amount of work upon the excretive organs when they were transformed into hippuric acid.

Doctor WILEY. That is one of my objections; that is the point I stated.

Mr. TOWNSEND. Can we infer from that that it is injurious to health to exercise any organs of the body.

Doctor WILEY. Not normally; normal exercise is healthful always. It is their overwork that hurts.

Mr. TOWNSEND. That is a normal exercise—the formation of hippuric acid?

Doctor WILEY. From the natural things we eat, it is; but anything additional is an abnormal exercise and very much inclined to hurt any organ.

Mr. BARTLETT. Let me ask you this question. Suppose a man did not eat anything which has benzoic acid in it excepting the small quantity that he would get in preserved food, such as tomato catsup and the like. Would that put the organs to an unnecessary amount of work—work them to an unnecessary extent—to take care of that?

Doctor WILEY. If it were not necessary to add the benzoic acid it would be an unnecessary burden.

Mr. TOWNSEND. Do you mean by necessity, if it were not necessary in order to preserve it?

Doctor WILEY. For any purposes, whatever the necessity might be; to preserve it or otherwise.

Mr. TOWNSEND. If it becomes a business necessity, do you mean to say the effect upon the organs would be different?

Doctor WILEY. Just the same; but if it was a necessity we could not avoid it. We are not proposing to legislate against necessities: our legislation is only against that which is avoidable.

Mr. BARTLETT. I would conclude, then, that you think benzoic acid as a preservative is not necessary.

Doctor WILEY. I think you forecast my argument very well.

Mr. ADAMSON. Before you became a chemist, you saw women make catsup and put it up hot in sealed bottles and keep it a long time, didn't you?

Doctor WILEY. Yes, sir.

Mr. ADAMSON. Without putting anything in it?

Doctor WILEY. Excepting the ordinary spices and condiments.

I want to call the especial attention of this committee to this argument which I am presenting. I will state it again without reading from my manuscript, so as to make it perfectly distinct.

The human body is required to do a certain amount of normal work. That amount of normal work is a beneficial exercise of these organs. If you diminish the normal work of an organ you produce atrophy—lack of functional activity. If you increase it hypertrophy ensues, and loss of functional activity. Nearly all of the organs that wear out do so from one of those causes, not from normal exercise of their functions. Therefore, assuming that the food of man, as prepared by the Creator and modified by the cook, is the normal food of man, any change in the food which adds a burden to any of the organs, or any change which diminishes their normal functional activity, must be hurtful.

Mr. ESCH. If the organs were always normal, death would not ensue?

Doctor WILEY. I will not go so far as that, Mr. Esch. I do refer to longevity, though, and I believe this with all my heart, that when man eats a normal food normally the length of human life will be greatly extended. That is what I believe. But if we consume abnormal food abnormally we shall lessen the length of human life.

Mr. TOWNSEND. Who is going to define normal food; there is a great difference of opinion about that?

Doctor WILEY. I will admit that.

Mr. MANN. Doctor, do you think the action of eating cranberries with turkeys is detrimental to health in any way or to any degree?

Doctor WILEY. I will answer that as categorically as I can. I do not believe that a healthy organism is going to receive any permanent injury or measurable injury by eating cranberries because they contain benzoic acid. And I want to add this, that it is not because they contain benzoic acid that they are wholesome, but that if they did not contain it they would be more wholesome than they are.

I want to accentuate this point: I noticed very many questions from many members of the committee which leads me to think that you have this feeling, that if a substance does not hurt you so that you can measure it it is not harmful. That does not follow at all. Take this one substance of benzoic acid. Benzoic acid never takes any part

in the formation of tissue, and its degradation product is hippuric acid, which is a most violent poison. If the kidneys should cease to act for twenty-four hours there is not a man on this committee who would not be at death's door from the hippuric acid and the urea which would be in the blood. Hippuric acid is perhaps far more poisonous than urea; it is a deadly poison. Therefore nature gets rid of it directly it is formed, otherwise health would be destroyed.

Now, is there force in the argument, gentlemen, that in view of the fact that this degradation product comes from the natural foods which we eat—and I am not criticising the Creator at all for putting them in the food—then benzoic acid, which occurs in natural foods and of which the degradation product is a violent poison if increased by an infinitesimal amount, and although we may not be able to note any injury coming from it, yet we should be advised to use it? There is a subtle injury which will tell in time. For instance, a mathematician desires to make a curve to express infinitesimally small values which only the mathematician can consider, and to do that he has to have experimental evidence. He can not experiment at the small end of his curve; it is impossible. He experiments upon the part of the curve that he can measure, fixes the ordinates and the abscissas with the points that he can measure. Then he draws his curve, passing into the infinitesimally small values. And it is the same with the substances added to food. You must construct your curve on data which you can measure, and then you draw your curve down to the infinitesimally small. That curve is a curve the moment it varies from zero, although you can not see it or measure it. If you add any substance to food—add, I say—which produces a poisonous degradation product, or adds one additional burden to the secretory organs, you have changed that infinitesimal small part of your curve that you can not measure, but the change is there all the same.

MR. MANN. Take the case of cranberries. Does benzoic acid in the cranberries to the extent that the benzoic acid exists injure cranberries as a food?

DOCTOR WILEY. It is so small that you can not measure its harmful effects.

MR. MANN. But to the extent that it exists at all; or that the other values in cranberries as a food in the normal use of them overcomes the injurious effects of benzoic acid. If that be the case, might not that be the case of other preservatives in other foods?

DOCTOR WILEY. What is true of one is true of all.

MR. MANN. But with artificial preservatives. Might not the case arise where, although the food is injured to the extent in which the preservative exists, yet it has preserved the food so that it is better food, the total product is better than the food would have been without the preservative. That is what we want to get at here.

DOCTOR WILEY. I stated that particularly in my introduction. I said there were many places where preservatives were indicated. Wherever you can make food better, where it is impossible to have it without having a preservative, certainly the preservative is indicated.

MR. ADAMSON. I am curious to ask you, before you leave the subject of cranberries, about the effect of berries, in which I am locally interested. I can give up cranberries, but I can not give up blackberries and huckleberries.

Doctor WILEY. I wish to assure Mr. Adamson, so that he will have no doubt about it, that if he eats blackberries and huckleberries, properly prepared, he will have no reason to think that they are injurious. Likewise those who eat cranberries. Do not misunderstand me, gentlemen.

Mr. ADAMSON. There is really something in blackberries?

Doctor WILEY. Do you mean a poisonous substance?

Mr. ADAMSON. Yes, sir.

Doctor WILEY. I do not suppose there is a food we eat that does not contain some element, not necessarily nutritious, that is of a poisonous nature in the sense in which I have explained that term.

Mr. ADAMSON. They are thought to contain an astringent?

Doctor WILEY. They do contain tannic acid. Some chemists have thought they found traces of salicylic acid and benzoic acid in them, and they probably have.

Mr. BARTLETT. Huckleberries contain tannic acid?

Doctor WILEY. Yes, sir.

Mr. TOWNSEND. I have been very much interested in your statement; it certainly is an interesting statement, and I want to go back to this proposition once more, which you have already touched upon, that the presence of these deleterious substances, as you denominate them, in native products and their disposition in the body indicates that there is in the human body an arrangement for taking care of them, and unless that organ or system, whatever it is, that does look after them, is kept in proper exercise that the body is in serious danger.

Doctor WILEY. You have misunderstood me, Mr. Townsend, in my statement. I said that the proper exercise of an organ is necessary to its functional activity; but I did not wish to be understood to say that the kidneys could not have normal functional activity without secreting large quantities of hippuric acid.

Mr. TOWNSEND. I understood you to say that the more we could avoid the exercise of that function in the preparation of foods or in contributing food to the body the better it would be for health.

Doctor WILEY. I think you misunderstood me again. I said the normal exercise of the functions of the body—

Mr. TOWNSEND. What is normal exercise, the normal exercise of a function?

Doctor WILEY. The exercise of a function which is compatible with health.

Mr. TOWNSEND. And yet I am lost.

Doctor WILEY. For instance, the normal exercise of the lungs is that exercise which is compatible with the ordinary condition of health. If you abnormally exercise the lungs, you inflate them so that they become permanently distended and you have harm—asthma and distension. If you have an abnormal lack of exercise, they become indurated and you have tuberculosis. So wherever you overwork an organ you produce injury, and wherever you fail to give it its normal work you produce atrophy. But the secretion of excessive quantities of hippuric acid is no normal function of the kidneys, and I have the highest authorities in the world, which I will quote to show you that my position is right.

Mr. TOWNSEND. I suppose you will demonstrate also before you get

through how much these organs are stimulated by the use of benzoic acid in catsup and such things as that?

Doctor WILEY. Yes; I have data on that subject, or rather on the general effect of these bodies on functional activity.

Mr. ESCH. Is there any element in cranberries which has been put in there by nature which has the effect of neutralizing the effect of the benzoic acid in the system?

Doctor WILEY. Do you mean some constituent of the cranberry which helps to rid the body of the hippuric acid?

Mr. ESCH. Yes.

Doctor WILEY. I do not know that there is.

Mr. ADAMSON. Where one poison neutralizes the effect of another.

Doctor WILEY. That is the case sometimes.

Mr. ESCH. I referred to cranberries particularly.

Doctor WILEY. I do not know of any constituents which have that effect.

Mr. MANN. Doctor, is the cranberry less or more healthful raw or cooked and combined with sugar?

Doctor WILEY. I have never eaten cranberries any other way than cooked. I think they are almost inedible raw.

Mr. TOWNSEND. Isn't it a fact that in some places they do consume them raw largely?

Doctor WILEY. It may be.

Mr. MANN. You referred to the fact a while ago that poison which nature put in a plant might be less injurious than the one which the chemist put in; and what I wanted to ascertain was whether the poison which nature puts in a cranberry is more or less injurious the way nature puts it in or the way man fixes it up by adding sugar.

Doctor WILEY. I think there is no doubt, as suggested by Mr. Mann, that what we call injurious materials or harmful poisonous materials which are found in plants used as foods, are less injurious in the quantity in which they are present, than if a smaller quantity be added to other foods containing none of that kind. I believe physiologists will testify to the truth of that statement, for man can not imitate nature's combinations.

I will illustrate that by mineral waters. You can reproduce synthetically any mineral water that is known. There is not one that the chemists can not so imitate that it is impossible for the most delicate analytical process to distinguish the difference. And yet every physician and physiologist will tell you that the physiological effect of the natural water is different from that of the artificial. The same is true of champagne. You ferment champagne in the bottle, and it takes twenty-four to thirty months to do that, and you get a wine which has a certain chemical composition plus a certain amount of carbon dioxide. You take the same wine, the same composition made from the very same grape, and charge it artificially with carbon dioxide and you get a beverage which is physiologically entirely different from the natural wine, as every physiologist will tell you. Why that is so I can not tell you, but it is so. What nature does in this way with what appears to be poisonous constituents is less harmful in the same quantity exactly than in what man does artificially. I think that that is a point on which we might all agree. I am sure that if you would ask Professor Vaughan that question he would agree with me.

Mr. BARTLETT. Did you see the account in yesterday's Herald about the dinner that some chemist gave to a friend in New York, at which everything they ate was made out of acids and things of that kind?

Mr. MANN. Synthetic products?

Mr. BARTLETT. Yes.

Doctor WILEY. Yes, sir; I saw the account, and I know the gentlemen very well. I don't believe any of them would care to eat that kind of a dinner every day. It is like my very distinguished friend, Professor Chittenden, perhaps the most distinguished physiological chemist in this country, who proved conclusively to himself that man in his natural tastes ate too much protein. The average man instead of eating 17 grams of nitrogen in a day, as he does, ought not to eat more than 10 or 11. But almost every man taught to do that, I understand, has gone back to the old way, although apparently it was beneficial at the time.

Mr. TOWNSEND. Professor Chittenden does not agree with you in regard to the use of preservatives.

Doctor WILEY. I think not; I think he does not agree with me. I want to say here, Mr. Chairman, that experts never think the less of each other because they disagree; it is the natural condition of humanity.

Mr. ADAMSON. You did not really run a boarding house on pills, paregoric, and other things, did you?

Doctor WILEY. I ran a boarding house something of the kind you describe for four years, and I am running it to-day; and would be pleased to have you come down and take a meal with us.

Mr. ADAMSON. I think I would prefer to have a colored woman do the cooking for me.

Doctor WILEY. We have a colored cook. You will hear more about that boarding house later on.

Mr. BARTLETT. I understood you to say you knew these gentlemen in New York who gave this dinner that we were speaking about a moment ago?

Doctor WILEY. I know them very well.

Mr. BARTLETT. They are reliable gentlemen?

Doctor WILEY. Oh, yes; perfectly so. In fact, I have a very high opinion of the chemists of this country. Just as high when they differ from as when they agree with me.

Mr. ADAMSON. While you have such a high opinion, yet you do not take their judgment in these instances?

Doctor WILEY. Certainly not; I should not occupy such a position. I do not want anybody else to judge for me the results of my own work. I want to do that myself.

Mr. ADAMSON. I wanted to give you a chance to disclaim that.

Doctor WILEY. Not only disclaim it, but I never have put myself in any such position and never intend to.

Now I will go on with my statement.

Because nature produces an almost infinitesimal quantity of substances in foods which add to the quantity of these poisonous excreta appears to me to be no valid argument for their wholesomeness. Could even the small trace of substances in our foods which produces hippuric acid be eliminated, the excretory organs would be relieved of a useless burden and the quantity of work required by them be diminished. This would be conducive to better health and increased lon-

gevity. I fail to see the force of the argument that a deliberate increase of the work required by the adding of substances capable of producing poisonous degradation products is helpful and advisable. Granting, for the sake of the argument, the grounds of a trace of benzoic acid and its analyses in all the substances mentioned by Professor Kremers, we do not find that this is a warrant to add more of these bodies, but, on the contrary, a highly accentuated warning to avoid any additional burden. That benzoic acid is a useful medicine, no one who has ever studied medicine will deny, but I think almost every practicing physician will tell you that the exhibition of drugs having a medicinal value in case of health is highly prejudicial to the proper activity of these drugs when used in disease. The excretory organs of the body become deadened in their sensibilities by the continued bombardment to which they are subjected and do not respond at the proper time to the stimulus which a medicine is supposed to produce. Keeping the hand in cold water constantly would unfit it to be benefited by the addition of a cold application for remedial purposes.

I think that I need only call the attention of the committee to the wide distinction between a drug used for medicinal purposes and a food product to show them that all reasoning based on the value of drugs as medicines is totally inapplicable to their possibly beneficial effects in foods. I further think I shall be sustained almost unanimously by the medical profession of the United States when I say to this committee that the "drug habit," which is so constantly and so unavoidably, I am sorry to say, formed in this country is one of the greatest sources of danger to the public health and of difficulty in the use of remedial agents that can well be imagined. Professor Kremers, on page 33, seeks to justify the statement he reads from Professor Hare respecting the properties of benzoic acid by saying that benzoic acid is useful in diseases of the urinary organs which produce alkalinity. I will show this committee later on that small doses of borax bring about this abnormal condition of the urine, and therefore it might be advisable in using borax, which has been pronounced harmless by some experts here, to be able to counteract one of its particularly certain effects by administering a remedy at the same time that you supply the cause of the disease. For this reason your committee might well say in the bill that whenever borax is used in foods benzoic acid should also be used as a corrective of its dangerous influences.

I am somewhat surprised also at the reference that Professor Kremers makes to salt, on page 34. Salt is not only a delightful condiment, but an absolute necessity to human life, and the fact that excessive doses of salt are injurious has no more to do with this argument than the fact that you can make yourself ill by eating too much meat. It seems to me astonishing in these days of rigid scientific investigation that such fallacious reasoning can be seriously indulged in for the sake of proving the harmlessness of a noncondimental substance. Yet this is the argument advanced by Professor Kremers on page 34 in respect of salt, wood smoke, and other useful, valuable, and necessary condimental bodies. The argument in regard to benzaldehyde in ice cream is on the same plane. The substance known as ice cream, as usually made, is an inferior food product at best, and how it could be improved by the addition of a substance which increases the quantity of poisonous principles in the excrements is a matter entirely beyond my comprehension. I am perfectly familiar with the argument that this small

quantity would not produce any harm. It is doubtless true, Mr. Chairman, that a slight increase for one day or even oftener of these bodies in the food would produce practically no measurable effect upon a healthy individual for a long time, but that in the end it would produce no harmful effect is contrary to all the rules of physiology and logic.

The body wears out and death supervenes in natural order from two causes: First, from a failure of the absorptive activities of the metabolic processes, and, second, by an increased activity of the catabolic processes, producing increased amounts of poisonous and toxic matters in the system, while the excretory organs are less able to care for them. Thus the general vitality of the body is gradually reduced, and even old age, which is regarded as a natural death, is a result of these toxic activities carried through a period of time varying in extreme old age from eighty to one hundred years. This process is described by Professor Minot, of Harvard University, as the differentiation and degeneration of the protoplasm. On the contrary, it is not difficult to show that every condimental substance, by its necessary and generally stimulating effect upon the excretory organs which produce the enzymes of digestion, produces a positively helpful result, while its preservative properties are incidental merely thereto. Condiments are used not simply because they are preservatives, but because without them the digestive organs would not respond to the demands of nature, and therefore I ask your very careful consideration of the arguments based upon a comparison of noncondimental preservatives added to foods and the use of the condimental substances which are natural and necessary. I do not believe that your minds will be misled in the consideration of this important and radical distinction.

A careful review of other parts of the argument of Professor Kremers shows that he unwittingly admits the poisonous and deleterious properties of benzoic acid by calling attention, on page 35, to the fact that when doses of it are added to all kinds of stock, so called, preserved in large quantities, it is boiled out or disappears by sublimation during subsequent treatment. If benzoic acid is a harmless substance, as suggested, why should so much importance be attached by its advocates to the fact that it is practically eliminated? Thus the advocates of benzoic acid at once, by their own words, show the insecurity of the platform on which they stand.

MR. TOWNSEND. Did you understand him to testify in that way as showing that that was the reason it was not harmful?

DOCTOR WILEY. No; excepting it was boiled out.

MR. TOWNSEND. That was in answer to a question.

MR. ESCH. The use of it more particularly with reference to the preparation of the stock.

DOCTOR WILEY. Yes; I have mentioned that in large quantities, in relation to the stock.

You are asked to insert in this bill a provision which will allow the use of one-fourth or one-fifth of 1 per cent of benzoic acid in food products, which is practically ten times that found, as stated by Professor Kremers, in the cranberry, which, of all known vegetable substances used as foods, contains the largest quantity. Fortunately, cranberries are not an article of daily diet. Do not, I beg of you, lose view of the fact that because a single dose of benzoic acid does not make you ill its daily consumption is wholly harmless. This is a non-

sequitur of the most dangerous character. Professor Kremers states his position on page 37, where he says:

I know that salicylic acid has been used to a considerable extent; boracic acid also has been used. There are worse things than that by far that have been used. The question is, I suppose, of finding a preservative that, if it is not absolutely harmless, will do the least harm.

I must acknowledge my gratitude to Professor Kremers for thus stating in his own language a position which I regard as wholly irrefutable in respect of the use of benzoic acid in foods.

In this connection I desire to call attention to an error on page 38 of the record, where Mr. Bartlett referred to the Association of Official Agricultural Chemists, the question being if Professor Kremers had said that the association of chemists had recommended or approved the use of this benzoic acid. The record reads as follows:

MR. BARTLETT. What association is that? Is it the Association of Official Agricultural Chemists?

W. D. BIGELOW. It is the standards committee of the Association of Official Agricultural Chemists, composed of the official chemists of the various States.

As the record stands, it would seem to indicate that the standards committee of the Association of Official Agricultural Chemists had approved or recommended the use of benzoic acid. Such is not the case. Mr. Bigelow only wished to identify the committee to which reference was made, and did not intend, as it seems in the record, to say that this committee had approved and recommended the use of benzoic acid. This doubtless refers to page 32, where the question was asked respecting the constitution of the standards committee, and refers to the oil of bitter almond, which is a flavoring matter.

I desire to state that the committee on food standards, to which reference is made, has never made any decision of any kind respecting the wholesomeness of any substance for which standards have been proposed or adopted. The whole question of wholesomeness of substances added to foods is reserved by the committee specifically for future study, and in this study it is proposed to secure the services of the most eminent physiologists and pharmacologists in the country. The sole question considered by the standards committee up to this time has been the composition of a body as respecting its standard of purity and not with reference to its wholesomeness as a food.

Farther down on page 38 Professor Kremers says that he has searched through all literature and has not found a statement that benzoic acid administered even in medicinal doses would produce harm. I would like to compare this with his own quotation of Professor Hare on page 33, in which it is said:

Ordinary doses cause a sense of warmth through the entire body, which feeling increases with the amount ingested, large quantities causing severe burning pain.

Asked by Mr. Richardson, Professor Kremers acknowledged that there might be many persons who would be injuriously affected by benzoic acid. Now, when anyone is accused of a crime it is no defense to prove that the crime was not committed against a hundred or a million individuals. It is sufficient to prove that it was committed against one. Professor Kremers acknowledges that benzoic acid may be harmful, therefore Professor Kremers has convicted benzoic acid as being a harmful substance; and, therefore, his argument that it should be used indiscriminately in foods, or, as asked when before this committee, be permitted to the extent of one-fourth of 1 per cent, being ten

times the quantity produced in its most abundant natural substance, seems wholly illogical.

Mr. TOWNSEND. That would be true of any article; that not only applies to a preservative, but it applies to all kinds of foods as well.

Doctor WILEY. Well, yes; but foods and drugs must be regarded differently.

Mr. BARTLETT. There are people who can not eat food ordinarily regarded as harmless. There are certain people who can not drink sweet milk; and I know people who can not eat eggs of any description, nor anything that has an egg in it. Now, do you think that everybody ought to be prevented from eating eggs or drinking milk if a half a dozen people in a thousand are injuriously affected by them?

Doctor WILEY. Certainly not; nor would I prevent anybody from using benzoic acid who wanted to do it, but I certainly would help persons from using it who did not want to use it. I am not advocating the prohibition of the use of benzoic acid by anybody who wants to use it. I would be in favor of putting benzoic acid in a little salt-cellar, the same as is used for salt and pepper, and letting the people use it if they want to. I think benzoic acid would not hurt me, or be injurious to my system, if I used it one day—

Mr. BARTLETT. You know some people have tried to eat a quail a day for thirty days, but they get sick.

Mr. ADAMSON. Is there not a great difference between the occasional use of these poisons medicinally, in cases of emergency, and the use of them in any quantities in food?

Doctor WILEY. I think that is a great point. I will come presently to the statement of Professor Vaughan, which covers that case beautifully in the testimony he gave here.

Now, gentlemen, you are more interested in benzoic acid than any other, I think, and I would be very glad if I could lay before this committee the results of our work on benzoic acid. I will state briefly that the magnitude of this work has been so great that while we have gone over the experimental data, including thousands of analyses which we obtained by experimenting upon twelve young men over a period of three or four months, we have been unable to collate all the analyses and study the data as we have done with the boric-acid tests.

Mr. ESCH. For how long a period did that investigation continue?

Doctor WILEY. About three months. The boric-acid tests continued nine months.

Mr. TOWNSEND. When did you begin the investigation?

Doctor WILEY. In the fall of 1902.

Mr. KENNEDY. Where did you get the young men?

Doctor WILEY. They were volunteers.

Mr. KENNEDY. Did they know what they were submitting to?

Doctor WILEY. Yes; they knew thoroughly that they were going to be experimented on, but not in just what way.

Mr. KENNEDY. State briefly how you conducted your experiments.

Doctor WILEY. If you will allow me, I will say that I have that in the proper place in my statement, a full description of it, which I will lay before the committee at that time.

Mr. ADAMSON. Did any of the young men get sick, or did any die?

Doctor WILEY. None died, but nearly every one was ill.

Mr. ADAMSON. If any of them had died it would have been laid on to you and your experiments.

Doctor WILEY. Very justly so; the courts then would have had to decide. We had from each young man a release just like a surgeon takes when he operates, that in case any injury might occur we might not be held responsible.

Mr. LOVERING. Is benzoic acid desirable for any other purposes than a preservative?

Doctor WILEY. It is an excellent medicine for many purposes.

Mr. LOVERING. Does it make a food relish?

Doctor WILEY. Oh, no; it is noncondimental.

Mr. LOVERING. You spoke of having it in a saltcellar and using it in the same way that salt and pepper are used.

Doctor WILEY. I did not mean to be used as a relish. I meant that anybody who wanted to use benzoic acid in his food ought to have that privilege.

Mr. LOVERING. Why should he want it?

Doctor WILEY. I don't know; it is not a condiment.

Mr. GAINES. Is ordinary decay such as takes place in a vegetable on the first process—the wilting of the vegetable—similar at all to the process of digestion?

Doctor WILEY. No, sir.

Mr. GAINES. The rotting of vegetables or meat is not similar to digestion?

Doctor WILEY. The rotting to some extent is similar in the fact that both processes are caused by certain organisms, but the organisms are entirely different.

Mr. GAINES. What I am trying to get at is perhaps better stated by this question: Do you consider it harmful or healthful to have a vegetable or a food product preserved from decay prior to the process of digestion?

Doctor WILEY. I will say that I believe the great majority of food products are best when fresh. There are some food products that may be improved by keeping, such as, for instance, meat, poultry, game. There are others that are never so good as the moment they are produced, like eggs, fish, or vegetables.

Mr. MANN. Have you ever given any special study to the subject of ptomaine poisoning?

Doctor WILEY. No, sir; not at all.

Mr. MANN. Is not that really the question involved to a large extent here, as to the relative desirability of taking chances on slight poisons from preservatives?

Doctor WILEY. That is a very important point in animal products and milk.

Mr. MANN. Ptomaine poisoning is a common method of poisoning from canned goods and everything of that sort.

Doctor WILEY. Whenever a protein substance—which is one of the most important constituents of our foods—undergoes a certain kind of decay under the influence of a pathogenic organism, one of the degradation products is a composition called ptomaine. There are many different kinds. That of course is very objectionable, very dangerous. Many of you have read of whole companies being poisoned in the summer time by eating ice cream. No one is ever poisoned by eating fresh ice cream. An assistant of mine was in a cold-storage house a

few days ago and noticed large numbers of very nice tanks being prepared and asked what that was for. They said that in May and June we will put in our supply of cream for the Fourth of July. That is why so many Fourth of July picnickers are poisoned by ptomaines.

Mr. GAINES. Where do these organisms come from?

Doctor WILEY. I do not know where the organisms come from, but the ptomaines come from the degradation of the protein of the cream, casein, and other protein compounds of milk.

Mr. GAINES. Degradation is a process of decay prior to the process of digestion?

Doctor WILEY. Yes; it is that, but something beyond that. A ptomaine is never produced by an ordinary healthy organism. It is a pathogenic organism that produces it.

Mr. GAINES. That is what I wanted to reach, because it would have some relation to the statement as to the harm that is done by decayed stuff and the harm that is done by small amounts of some preservative.

Doctor WILEY. It is a very proper inquiry to make.

As I say, I regret that I can not lay before you the results of the benzoic-acid series, but I have just a few data, not the conclusions, which I have copied, and I will have them printed so that the committee may read them. They are data taken out of the books, but not discussed, and I thought you would be interested in seeing something of the data themselves. I wish to say that these data are all subject to rechecking against the original before being finally published. I have just taken this out from the records as they stand to show something that we have done on this important subject.

Mr. MANN. Have you formed any conclusions from your investigations as to the desirability or necessity of the use of benzoate of soda in tomato catsup?

Doctor WILEY. I will come to that. I have a special article on that.

Mr. TOWNSEND. Why was this report not made before?

Doctor WILEY. It was impracticable for us to do it. There is a limitation to human possibilities in that respect.

Mr. TOWNSEND. That was completed over two years ago.

Doctor WILEY. The analyses were completed, I think, in the winter of 1904. The investigation on salicylic acid was completed before that, and we are just now getting ready the final proofs on the salicylic bulletin, and shall begin on benzoic acid and benzoates—that will be next.

Mr. TOWNSEND. The paper which you file shows the proceedings you had?

Doctor WILEY. Yes, sir; it is copied directly from our records.

Mr. BARTLETT. And the result?

Doctor WILEY. Yes, sir; some of the results. Not the results of the metabolism, because they can only be studied chemically.

I submit in this connection some observations respecting the formation of hippuric acid, the ingestion of benzoic acid, and the effects of benzoic acid on health from the experiments which I have myself conducted. I submit these data to the committee in advance of the analytical study thereof and without prejudicing in any way the final conclusion that may be reached thereon. It is but fair to say in this connection that owing to the great mass of data that has been accumulated in the course of these experimental researches it has been impossible up to the present time to subject them all to analytical study. In the case

of benzoic acid I may say that we have not yet even commenced this study, and what I submit, therefore, in this connection is simply a statement of some of the analytical data obtained and the results recorded. It will be several months yet before we will be ready to offer these data for publication in the form illustrated by the data already published in Bulletin No. 84, Part I, concerning borax and boric acid.

I regret that it is impossible to lay before the committee complete data respecting benzoic acid, inasmuch as the claims of this preservative as being least harmful have been pushed most persistently before you.

I may, however, give a few extracts from the medical history as recorded at the time of the experimental work. In the data recorded from April 21 to 25, 1904, I find that three members of the experimental class had very distinct symptoms of illness. No. 2 had numerous headaches, Nos. 5 and 6 complained of burning sensations in stomach and esophagus.

In the period from April 26 to 30 the condition of No. 2 was generally below the normal. Nos. 3 and 5 had burning sensations in throat and stomach. No. 6 had also similar sensations, but not so pronounced. No. 10 had a few attacks of cramps in his stomach. No. 11 had persistent headaches for two days.

In the third preservative period, from May 1 to 5, the general symptoms mentioned above were developed in a more pronounced manner, and in all cases where the symptoms were described by the young men careful investigations were made to determine their genuineness. Toward the end of this period No. 6 was in such a distressing condition that the further administration of benzoic acid had to be omitted. Considerable vomiting occurred among several members of the class.

In the fourth preservative period only three members of the class were able to continue the work. These were the only ones which had come through the third period in good condition. The other members had become sick during the third period. Already the general condition of their health pointed strongly to the fact that they would not be able to endure any further experiments, and consequently the preservative was withdrawn. In almost all cases where the limit of endurance was reached the subject became ill quite suddenly.

To summarize, it may be said that the most pronounced symptoms during the preservative period were burning sensations in throat and esophagus, pains in stomach, some dizziness, bad taste, and when the limit of endurance was reached the subject suddenly became nauseated and ill. In all cases but one there was a material loss of weight. And that this bad effect was continued during the after period shows the persistence of the after effect. Only two of the members of the class immediately showed an increase in health after the suspension of the preservative. If the jury, therefore, is polled, the verdict is eleven for conviction and one for acquittal.

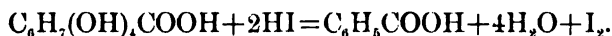
THE FORMATION OF HIPPURIC ACID AFTER THE INGESTION OF BENZOIC ACID AND THE EFFECTS OF BENZOIC ACID ON MEMBERS OF THE HYGIENIC TABLE.

Hippuric acid occurs as a normal constituent of human urine in amounts varying from 0.1 gram to 1 gram per day (Analyses des Harns-Neubauer and Vogel), and in some cases after eating freely of

vegetables and fruit, especially plums (cranberries), it may be more than 2 grams per day. (Hammerstan *Physiol. Chem.*) It may be argued from this fact that all fruits do contain benzoic acid—a la ked. They must contain the radicle C_6H_5 , but not necessarily C_6H_5COOH , in order to bring about this formation. On an average mixed diet the average quantity of hippuric acid eliminated is given as 0.7 gram per day.

It is the chief nitrogenous constituent in the urine of herbivora. This is explained by the fact that animals feeding wholly on plants and vegetable foods consume a large amount of aromatic substances, which, by oxidation, as toluol (cinnaminic acid), by reduction, as quinnic acid, are converted into benzoic acid or substances containing the benzene nucleus within the organism, and then, by combination with glycocall, into hippuric acid and excreted as such.

The formation of hippuric acid in the human organism is then associated with the formation of benzoic acid. It has been proven conclusively, both synthetically and by feeding experiments, that hippuric acid is formed and is the resulting product of the union of benzoic acid, or a substance containing the benzene nucleus, and glycocall. Thus any substance or material taken with the food which contains the benzene nucleus or is capable, by oxidation or reduction, of being converted into benzoic acid will unite with glycocall, which is derived from the protein metabolism within the body, to form hippuric acid. As an example, reduction of quinnic acid:



Quinnic acid.

Benzoic acid.

There are also a few cases where the benzoic acid is derived solely from protein. Salkowski, Meissner, Shepard, and others found hippuric acid in the urine of starving dogs, also in dogs' urine after a diet consisting entirely of meat. The benzoic acid in these cases evidently originated from the putrefaction of protein in the intestines.

The amount of hippuric acid eliminated is influenced by (1) the amount of glycocall present and (2) by the amount of benzoic acid formed. If there is sufficient glycocall formed during digestion of proteids to combine with the benzoic acid, then all will be eliminated as hippuric acid. Experiments have been conducted on rabbits by Wiener (*Archiv. expr. Path. and Pharm.*, II, 313), in which he administered small amounts of benzoic acid and recovered the entire amount in the urine, combined with glycocall, as hippuric acid.

In the work on the Hygienic Table, Series VIII, benzoic acid and sodium benzoate in amounts equivalent to benzoic acid were administered.

Hippuric and benzoic acids were determined in the fore periods, preservative periods, and after periods. The results are tabulated in the accompanying table.

The method employed (Bunge and Schiniedeberg, *Archiv. Exper. Pathol.*, VI, 235) is not as clear cut as could be desired, presenting many difficulties, particularly in concentrated urines, where a considerable quantity of fatty and resinous matter is extracted by the acetic ether employed to extract the benzoic and hippuric acids. The separa-

tion of benzoic and hippuric acids in the acetic ether extract is accomplished by means of petroleum ether.

The amounts of hippuric acid in the fore periods in cases of Nos. 2, 8, and 9 are somewhat high, and in addition benzoic acid was found in considerable amounts in the fore periods of these subjects. During the preservative periods the amount of hippuric acid is shown to be greatly increased following closely the increased injection of benzoic acid. The benzoic acid is also found to pass through the body unaltered to quite an extent.

Benzoic acid is shown by these results to be somewhat accumulative. (?) The amount of hippuric and benzoic acids found in the after periods is greater than the amount found in the fore periods.

In the part of the table which shows the "hippuric acid and benzoic acid found calculated to benzoic acid," the increase in elimination is shown to agree quite closely and uniformly with the benzoic acid injected.

The per cent of benzoic acid recovered is also shown, calculated from the excess found over the average in the fore and after periods. From an inspection of the tables this would be increased slightly if the fore periods only had been used as a basis for the average normal excretion.

Table showing amount of benzoic acid ingested, amount of hippuric acid in the urine, and the per cent of benzoic acid administered recovered in the urine as benzoic acid and hippuric acid.

HIPPURIC AND BENZOIC ACID FOUND IN URINE.

No. of member.	Hippuric acid.							
	Fore period.		Preservative period.				After period.	
	1.	2.	1.	2.	3.	4.	1.	2.
1	2.1525	1.7749	5.6498	7.8078	10.9846	11.2795	2.5129	3.8029
2	6.3443	3.1999	6.7025	5.4282	12.8208	6.2411	4.8083	7.8636
3	2.8288	1.6239	5.5106	7.6092	3.8607	2.2268	2.6280	4.2209
4	3.0438	2.1840	6.0351	9.4809	11.9408	11.1761	3.0761	4.7721
5	2.1761	1.2908	5.9472	7.7706	9.8028	4.1680	3.2489	4.0602
6	1.9718	1.3314	6.2705	10.0661	9.1770	4.3150	4.3741	2.7019
7	2.4795	2.5703	2.8946	2.7271	10.3323	5.9928	2.3518	2.8439
8	6.1326	3.1279	6.9258	1.4940	13.7241	11.2412	4.2866	4.3441
9	2.4305	8.7487	4.9649	6.2752	8.9273	.....	4.1775	4.5463
10	3.7805	2.9406	7.4529	5.2264	9.9889	2.8880	2.9625	4.1006
11	3.1990	2.3270	7.0953	6.5629	11.7991	4.5661	4.7888	3.9863
12	4.0231	5.2765	6.3983	8.0241	14.4092	5.0713	5.3519	7.0359

No. of members.	Benzoic acid.							
	Fore period.		Preservative period.				After period.	
	1.	2.	1.	2.	3.	4.	1.	2.
1	0.000	0.0245	0.1802	0.6793	0.4529	0.2200	0.0202	0.1548
2	.2022	.1000	1.4560	4.7208	2.6769	.7298	.3485	.6363
3	.000	.000	.8966	2.1083	.1857	.4159	.1446	.6138
4	.6589	.0782	.4553	1.5530	.3022	.4275	.2058	.000
5	.1088	.000	.1673	.6691	.3696	.1799	.2873	.4160
6	.0823	.000	.4671	1.5029	.4719	.2618	.0684	.1561
7	.6897	.000	.3576	4.7632	.8294	.5732	.0413	.1808
8	.000	.000	2.6298	8.2385	.7848	3.9738	.5604	.3730
9	.8469	.000	.2782	.4603	2.1716	.....	.2785	.000
10	.3536	.000	.4298	.5164	.5289	.2257	.000	.0652
11	.000	.000	.2614	.3336	.5307	.1572	.0994	.000
12	.1916	.1806	.8440	2.5203	.9030	.2120	.000	1.9246

Table showing amount of benzoic acid ingested, amount of hippuric acid, etc.—Continued.

TOTAL HIPPURIC AND BENZOIC ACIDS RECOVERED, CALCULATED TO BENZOIC ACID.

Number of members.	Fore period.		Preservative period.				After period.		Total amount preservative ingested.	Per cent recovered, calculated as benzoic acid.
	1.	2.	1.	2.	3.	4.	1.	2.		
1	1.4671	1.2343	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	1.7330	2.7469	35.0	53.3
2	2.0628	2.1811	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	3.6258	5.9961	25.0	67.9
3	1.9281	1.0685	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	1.9358	3.4908	15.5	60.6
4	2.7836	1.4886	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	2.3025	3.2186	35.0	56.4
5	1.5920	.8798	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	2.3018	3.1834	22.5	60.7
6	1.3763	.9075	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	3.0861	2.2561	22.5	66.4
7	1.3797	1.7519	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	1.6443	2.0192	28.9	53.1
8	4.1800	2.1320	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	3.3839	3.3839	34.9	72.5
9	2.0035	5.9631	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	3.0988	3.0988	21.4	28.2
10	2.9304	1.3227	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	2.8602	2.8602	20.4	54.0
11	2.1804	1.5861	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	2.7171	2.7171	24.9	56.6
12	2.9337	3.7771	<i>5</i>	<i>7.5</i>	<i>10</i>	<i>12.5</i>	Omitted.		22.4	53.6

Figures in *italics* are amount of preservative per five-day period.

It may be interesting for the committee to know what percentage of the food consumed by each of these individuals was composed of benzoic acid during the course of investigations. The average daily weight of moist food consumed by an average young man of 160 pounds is 2,500 grams, a little over 5 pounds; this does not include the water which he drinks in addition to the food.

Taking this as a basis for computation, the percentage of benzoic acid administered during the preservative periods of the investigations just referred to to the whole food, exclusive of water drank, are as follows:

During the first preservative period, 0.04 of 1 per cent.

During the second preservative period, 0.06 of 1 per cent.

During the third preservative period, 0.08 of 1 per cent.

During the fourth preservative period, 0.10 of 1 per cent.

From the above data it seems that the highest quantity of benzoic acid administered is far below the amount which is claimed should be allowed and permitted to be put into foods. In fact, the total percentage of benzoic acid as administered in the foods of these young men was almost exactly the same as that found in cranberries, which have been used to illustrate here the advisability of adding benzoic acid to foods. Professor Kedzie testified that he ate cranberries every day during the season. If this commission advises the use in foods of even the quantity of benzoic acid found in cranberries, it will be found possible in taking food with no larger quantity to consume the maximum quantity given in the experiment described above.

I have something here on benzoic acid, how it is made, and so forth. In fact, it is from the United States National Dispensatory, the eighteenth edition, page 32—that is, the last one. It shows that a very

large part of the benzoic acid imported from Germany to this country is made from the urine of cattle and horses.

MANUFACTURE OF BENZOIC ACID.

It is interesting in this connection to know something of the nature of benzoic acid and how it is manufactured.

According to the National United States Dispensatory, eighteenth edition, page 32, benzoic acid is obtained from benzoin by sublimation. It may also be obtained from toluol, from hippuric acid, and from organic compounds.

Benzoic acid is prepared from toluol, $C_6H_5CH_3$, by first chlorinating with HCl for the formation of trichlorid, $C_6H_5CCl_3$, and decomposing the trichlorid by heating under pressure with water to $150^\circ C$.

Toluol (or toluene) is one of the products of the distillation of coal tar. It is separated from the other distillation products by fractional distillation.

The German benzoic acid imported into the United States, as stated on page 32 of the United States Dispensatory—

is prepared from the urine of cattle and horses by boiling the calcium hippurate with hydrochloric acid. By boiling the hippuric acid thus separated with hydrochloric acid it is split into benzoic acid and glyccoll. It is white, has a fine luster, and is said to be very pure, but sometimes has a slight urinous odor, indicative of its origin.

I do not know what proportion of the benzoic acid used in our catsups are imported from Germany. It is well known that Germany leads all other countries in the manufacture of chemical products, and presumably large quantities, if not all, of the benzoic acid used in our catsups is imported from that country. In so far as I know, none of this particular kind of benzoic acid is used in foods.

On page 33 of the United States Dispensatory, eighteenth edition, it is stated:

Benzoic acid is irritant to the alimentary mucous membrane, and as a stimulant expectorant is of some value in chronic bronchitis and the later stages of the acute disorder. Led by his belief that it has the power of converting uric acid into hippuric acid, Dr. Alexander Ure, many years ago, proposed benzoic acid as a remedy for the dissolving of deposits of the urates, but it is not proved that the hippuric acid, which appears in the urine of those taking benzoic acid, is formed out of the benzoic acid itself. This conversion would appear to take place in the kidneys since, after the exhibition of large doses, benzoic and not hippuric acid can be detected in the blood, while even small amounts of hippuric acid injected into the blood produce violent poisoning. Moreover, Bunge and Schmiedeberg have succeeded in converting benzoic acid into hippuric acid by passing blood containing benzoic acid slowly through kidneys immediately after their removal from the body. In rare cases, according to Meissner and Shepard, the benzoic acid is converted into succinic instead of hippuric acid. When it is given very freely a portion of the benzoic acid escapes unchanged. Where the nitrogen necessary for the conversion of the benzoic into hippuric acid comes from is at present unknown. A priori it would seem probable that the source of this nitrogen was the urea, but the testimony as to the effect of the injection of benzoic acid upon the urea and uric acid of the urine is entirely contradictory.

It is also of interest at this point to show the chemical relations of benzoic acid to carbolic and salicylic acids, benzaldehyde, and hippuric acid. I therefore present to the committee the graphic formulæ of these bodies.

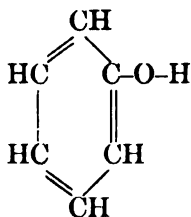
In addition to the investigations made with borax and boracic acid, which are laid before you in summary and which are contained in full detail in Bulletin No. 84, Part I, we have, under authority of Congress, studied in the same way the effects of the following substances

on health and digestion, viz, salicylic acid and salicylates, benzoic acid and benzoates, sulphurous acid and sulphites, formaldehyde, and sulphate of copper.

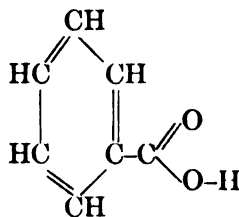
Some of the data relative to benzoic acid and benzoates are submitted for your consideration. The data relative to salicylic acid and salicylates have been compiled and subjected to analytical study and are now undergoing a final revision, preparatory to publication as Part II of Bulletin No. 84. The study of the analytical data relative to the other investigations has not yet been undertaken, but the results will, in the course of time, be published in practically the same manner as indicated in Bulletin No. 84, Part I.

The following general summary, subject to final revision, has been prepared to accompany the study of the data relative to salicylic acid and salicylates.

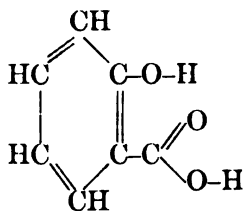
I would also like to show you something in relation to benzoic acid and some other common preservatives, which I can do in a moment by the use of this chart. [Exhibits chart to committee.]



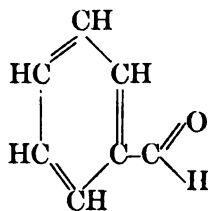
CARBOLIC ACID.



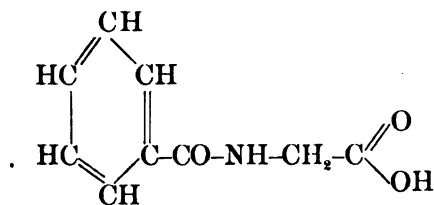
BENZOIC ACID.



SALICYLIC ACID COMBINING GROUPS OF BOTH CARBOLIC AND BENZOIC ACIDS.



BENZOIC ALDEHYDE.



HIPPURIC ACID.

Now, benzoic acid belongs to what is called the bensol series, one of the most remarkable series of organic chemistry. The first member is carbollic acid, which you all know. This is carbollic acid [indicating]. Notice its constitution. Now, by treating carbollic acid with carbonic

acid under pressure we have salicylic acid. Then by heating toluol, a coal-tar product, or acting on hippuric acid with hydrochloric, as I have just described, you produce benzoic acid, the same flow as you see here. By splitting off one of the groups we have benzaldehyde. I think you will be interested in seeing the relations of all of these bodies, because they are all highly germicidal. Carbolic acid is very germicidal, salicylic acid is germicidal, and benzoic acid is also germicidal. Benzoic aldehyde I don't know; I haven't studied that.

Mr. ESCH. Those letters [indicating] indicate chemical elements?

Doctor WILEY. Yes; carbon, hydrogen, and oxygen are the sole constituents of all of these excepting hippuric, where nitrogen is added, coming from the degradation of protein in the body.

Mr. ADAMSON. Which will do the most harm, the acid or the germ; and how much acid ought to be used?

Doctor WILEY. That is a proper question for the committee to ask. How are you going to get rid of the germ, and what is the best way? I shall suggest to you that salicylic acid is better than benzoic acid to get rid of it.

Mr. ESCH. Do you treat milk separately in your remarks?

Doctor WILEY. Yes, sir.

Mr. ESCH. Of course milk, as I understand it, is a liquid which is very favorable to germ production.

Doctor WILEY. Yes; I have an article on that.

Mr. ESCH. Very well, I will not ask the questions now.

Doctor WILEY. We have completed our study of salicylic acid, and it is ready, with the final checking, to go to the printer. I want to read the conclusions; there are only a few. These conclusions are subject to final revision of the work, which is a part of the one on borax which you have. It will be part 2 of Bulletin No. 84, and is practically ready for the printer, but we are checking it back with the original data to see that everything is correct.

You will see by consulting Part I that we are extremely conservative, expressing our conclusions in the most conservative way, plainly stating that the same data may be taken by other people and different conclusions reached therefrom.

Mr. TOWNSEND. Do I understand that you show in this summary just how you performed those experiments?

Doctor WILEY. Yes, sir; I have a full description of it in Bulletin No. 84, Part I, which you have; everything is given in detail. I have a special article there.

GENERAL SUMMARY OF RESULTS ON SALICYLIC ACID AND SALICYLATES.

In the discussion of the foregoing data the same reserve must be expressed, together with the same general statements respecting the conclusions that are found in Part I. There has been a general consensus of opinion throughout the world that salicylic acid is a very harmful substance, and this prejudice is perhaps greater than against any other material employed for preserving purposes. That salicylic acid should be singled out especially for condemnation among preservatives does not seem to be warranted by the data which have just been presented and discussed. That it is a harmful substance seems to be well established by the data taken as a whole. It is, however, a harmful substance of very minute virulence.

There is no doubt of the fact that salicylic acid is a drug which is often indicated, not only in diseases well established, but in conditions which, while merging on disease, might still be regarded as a state of health. It is apparent that it exerts an exciting influence upon the alimentary canal, stimulating the digestive organs to greater efforts, and this stimulation leads to an increased solution and absorption of the fat elements which are introduced into the stomach. In fact, it may be said, in the light of the data which are exhibited, to increase the digestibility of the food, meaning thereby its degree of absorption and solubility. The same data which show the effects just noted indicate that the general effect upon the system is depressing. It tends to secure a more rapid breaking down of the tissue than it does the building up thereof, and thus to interfere in a harmful way with the normal metabolic processes. There followed a gradual decrease of weight of the individuals, taken as a whole, although the quantity of food which was administered during the preservative and after periods was slightly increased, and for that reason there should have been experienced an increase in weight.

The final conclusion in this matter, therefore, is that the unenviable position which salicylic acid has heretofore held among the preservatives is unjustifiable; that it is not a very harmful substance; that there are many cases where its exhibition is attended with good results; that it is at first a stimulant to the digestive organs, but that finally it is an injurious substance, breaking down the tissues more rapidly than it builds them up, diminishing the efficiency of the metabolic processes in maintaining the body equilibrium in a state of perfect health, diminishing the body weight, securing in many instances symptoms of malaise approaching illness, and finally loading down the excretory organs with an additional labor, which can not fail in the end to prove harmful. It appears, therefore, from a general review of all the evidence which has been secured that salicylic acid is in its final effects a harmful and therefore an undesirable substance in food products.

I think it is only just to say, having had personal supervision of these experiments for four years, having noted daily the appearance and conduct of the men experimented upon, that of all the substances which we have used, salicylic acid appears the least harmful and most to be recommended if any. If you are going to admit any, salicylic acid is the one you should admit. This opinion is subject to revision when all the work is completed. And yet that is contrary to the general opinion. There I again differ with many of my expert friends.

I wish to say in justice to our own work, not that it has been well done, because I leave you to judge of that, but in so far as its magnitude is concerned, nothing of the kind has ever been done in the world before, and all the experiments that have ever been made on human beings with preservatives and coloring matters is scarcely equal in amount to the work that we have done. So that our data rest upon a much wider basis, a much larger number of people experimented upon, and a very much longer extended time than any other that have ever been secured in the world.

Mr. ESCH. How is your report on borax accepted by the scientific world, Doctor?

Doctor WILEY. The only criticism that I have heard is what Professor Vaughan made here, that it did not show that small quantities of borax were hurtful, though it did show that large quantities were. I will come to that point when I speak of his testimony.

Mr. BARTLETT. Salicylic acid is used in cases of rheumatism and neuralgia.

Doctor WILEY. A most valuable remedy. But I will say, Mr. Chairman—and I know only from those engaged in the manufacture of preservatives; they are all friends of mine, professional and personal, so far as I know—that salicylic acid is not so much used now as formerly as a preservative. It is a harmful substance, I have no doubt, but it has not the virulence that has been attributed to it.

Mr. TOWNSEND. In what product is that used as a preservative?

Doctor WILEY. Until legislation was had against it, it was almost the universal preservative. Benzoic acid has only come in since salicylic acid has been prohibited.

Mr. TOWNSEND. Are there any manufacturers using it now in this country?

Doctor WILEY. I think so, but I am not sure. We have not found it in any goods for a long while in this country, but I don't know that it is absolutely given up.

Mr. TOWNSEND. Do the Heinz people use it?

Doctor WILEY. I don't think so; no.

Mr. WANGER. The use of salicylic acid in malt liquors was prevalent.

Doctor WILEY. Yes, sir, twenty years ago in this and other countries. It is prohibited in France and in Germany, and in other countries. Now an English committee recommended to permit its use in quantities not exceeding 1 grain per pound. I have a record of the States which prohibit it and the States which regulate it in this country. Quite a large number of States prohibit the use of salicylic acid. I think that is good legislation. I am not objecting to it, but it is discriminating legislation, and that is the only thing unfair about it.

Mr. WANGER. From what is salicylic acid made?

Doctor WILEY. It is made from carbolic acid. Carbolic acid is the father of this whole series; and carbolic acid and toluol, from which benzoic acid is made, are both products of coal tar distillation. But salicylic acid is a direct descendant of carbolic acid, and benzoic acid is a collateral descendant of carbolic acid.

Mr. BARTLETT. You find salicylic acid in sand, don't you?

Doctor WILEY. No; that is silicic acid.

Mr. LOVERING. Are they accumulated in the stomach?

Doctor WILEY. That is a question ~~which~~ I will treat later.

You asked me about criticisms. Professor Rost, of the Imperial Board of Health, Germany, did criticise our bulletin, and I will refer to that. He said our statement that only 80 per cent of the administered salicylic acid came out with the urine was too low; that he had proof that it was considerably more than that; and he said that the reason we did not get more was because we didn't examine the urine long enough after stopping the boric acid; that it had accumulated in the body to a large extent and kept coming out for an indefinite time. Therefore we had not given the percentage eliminated by the urine as high as we ought.

Mr. ESCH. Were your methods of investigation criticised at all?

Doctor WILEY. I have seen no criticism on the methods of investigation.

Mr. ESCH. You say they were more thoroughly made than ever before in any country?

Doctor WILEY. They are more extended; I did not say thorough.

We are far from thinking that we do better work than anybody else. We are perfectly willing to admit that other people are better workers than we are. I only spoke of the magnitude of the work, not as to its thoroughness. I am far from claiming that it is more thorough than has ever been done.

The volume of the work involved in the investigations of this nature is little understood by those who have not participated in them.

The fact that the determinations were largely of a routine nature made it possible to systematize the work in such a manner that it could be conducted by a much smaller force than would at first be supposed.

At the same time, the great volume of the work in itself presented many serious problems. The work on this subject alone included more than 30,000 single determinations, each of which required a large amount of analytical work. Owing to the necessity of calculating the income and outgo of the bodies of the men under experiment, a large amount of calculation was necessary after the percentage composition of the various foods was determined.

Although this calculation has been greatly simplified by means of regular forms, the development of the latter in connection with the work has required much time and attention. After the percentage composition of the foods, feces, and urine was determined by the analysts and the results entered on the forms prepared for the purpose, there were necessary for the calculation of the results into such form as could be used for comparison something more than 670,000 multiplications of numbers varying from 2 to 4 figures, usually 3 figures each, 80,000 divisions, 34,000 additions, 25,200 of which were columns of about 25 numbers each, and 8,400 subtractions.

In this calculation the laboratory has had a very large amount of most valuable assistance from the Bureau of Statistics. Notwithstanding the great volume of work it has been so systematized that the figures relating to any individual for any day are always accessible and may be referred to instantly without inconvenience.

Our system of filing is so perfect that if you want to ask what John Smith ate on December 20, 1904, and what the effect of it was, we can instantly pull out the sheet and show you.

MR. TOWNSEND. Did you tell John Smith what he was expected to do?

DOCTOR WILEY. Yes, sir; he was expected to follow certain rules which I will explain to you.

THE CHAIRMAN. The hour of adjournment has arrived.

Adjourned at 12 o'clock noon.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
HOUSE OF REPRESENTATIVES,
Tuesday morning, February 27, 1906.

Committee called to order at 10.30 a. m.

STATEMENT OF DR. HARVEY W. WILEY, CHIEF OF THE BUREAU OF CHEMISTRY, DEPARTMENT OF AGRICULTURE—Continued.

THE CHAIRMAN (MR. HEPBURN). Doctor, you may proceed.

DOCTOR WILEY. Mr. Chairman and gentlemen, I come next to a brief review of the testimony of Professor Kedzie. I will state the

point of my criticism and will submit the manuscript, unless you prefer that I should read it in full.

The CHAIRMAN. You had better submit it.

Doctor WILEY. There are two points that I wanted to call to the attention of the committee. One is that we have examined a number of substances in which he testified that he has found benzoic acid, and we have found none.

Mr. BARTLETT. Which substances are those?

Doctor WILEY. Doctor Kedzie testified that he had found benzoic acid in cranberries, huckleberries, plums, grapes, grape fruit, oranges, pineapples, carrots, pears, cauliflower, rhubarb, and green peppers. We have tested all these substances for benzoic acid in our laboratory and have not been able to find any in huckleberries, Malaga grapes, grape fruit, oranges, pineapples, carrots, parsnips, cauliflower, rhubarb, and green peppers. The amount of benzoic acid found in cranberries where it occurs most abundantly, we found to be as stated by Professor Kremers, five-hundredths of 1 per cent, or about 1 part in 2,000.

We have obtained from the open market samples of the following fruits and vegetables, said by Professor Kedzie to contain benzoic (p. 58), and tested them for benzoic acid:

Malaga grapes, grape fruit, oranges, pineapples (two varieties), carrots, parsnips, cauliflower, rhubarb, and green peppers. We were unable to obtain any indication of benzoic acid in any of these fruits with the exception of pineapples, where in one test of one variety there was a reaction which might have been caused by a trace of benzoic acid. On repeating the test on a fresh portion of the sample, however, the test could not be confirmed. The test obtained, however, even if caused by benzoic acid, was so slight that that substance could not have been present in greater quantity than one part per million, or one ten-thousandth of 1 per cent. It is certain from our analyses that benzoic acid is not present in this substance in the quantities stated by Doctor Kedzie, viz, from one one-hundredth to two one-hundredths of 1 per cent.

In 1904 I obtained samples of huckleberries grown in three regions of the United States and did not succeed in obtaining the slightest indication of benzoic acid in any of them.

Professor Kedzie also dwells upon the fact that in the process of cooking a great deal of the benzoic acid escapes. Inasmuch as he contends that it is harmless, the object of enforcing this view of the case is not apparent, although I do not doubt its accuracy.

Professor Kedzie found catsup made by Heinz, when sold in Michigan, to contain benzoic acid. Mr. Allen finds that when sold in Kentucky, it does not contain any benzoic acid. Professor Kedzie states, on page 60, that he has determined that the amount of benzoic acid in grapes is not far from one one-hundredth to one two-hundredths of 1 per cent. It requires, of course, very delicate manipulations to quantitatively determine these small quantities, and very large quantities of samples must be taken. We feel certain that Professor Kedzie has utilized much more delicate methods than we have been able to develop in our own laboratory, and I regret that he did not disclose the methods employed to the committee.

Professor Kedzie testifies, on page 60, that the artificial product added to a food does not differ from the article naturally present in

food. He testifies that it is present as pure benzoic acid in either case. This statement would mean that if you should take some butter and skim milk and beat them up together the product will be exactly the same as that of the original full-cream milk. This is a remarkable doctrine in physiological chemistry, and upon this doctrine could be established the perfect wholesomeness of all synthetic foods. This will be strange doctrine to the makers of champagne. For instance, if a still wine having practically the same composition as champagne, when artificially carbonated with the same quantity of carbonic acid which would be found in the natural champagne, is exactly the same substance as the article made naturally by fermentation in the bottle by the slow and tedious process employed. Every physician who prescribes champagne and every man who drinks it will without hesitation doubt this statement.

On page 61 Professor Kedzie testifies that he is not a physiological chemist and not a doctor of medicine. On the same page, however, he testifies that between 60 and 100 grains, a large amount, a teaspoonful or a tablespoonful or something like that, would have an inflammatory action upon the stomach. When asked in regard to its specific effect in small doses, he said, as stated on page 61:

I eat cranberries right straight through the season. I like the cranberries, and I see no untoward effects whatever from their use. I never took benzoic acid except in that form and in the form of catsup.

He therefore testifies, as he says, from his own personal experience, and at the same time says that he never took any except that which was natural to certain foods and introduced in catsup. Professor Kedzie has already testified that cranberries contain only five one-hundredths of 1 per cent of benzoic acid. The amount which he took daily he does not state, but it evidently must have been quite small in quantity, and, more than that, it was in the form in which the Author of Nature had placed it and not in an artificial or adulterated form. From this remarkable metabolic experiment Professor Kedzie says that he can testify from his own experience that benzoic acid is not harmful. I ask you, gentlemen, to consider in all seriousness an expert testimony of that description and compare it with the elaborate trial and continued experimental work conducted in the Department of Agriculture on similar lines of inquiry which I have mentioned.

Professor Kedzie's experiments with boric acid and salicylic acid are described on page 62. I would like to quote them. He says:

I investigated bulk oysters, for instance, and found the presence of boric acid in a small amount. We investigated shrimps, also, which I found at the market and brought to the laboratory. That is my way of teaching. I investigated the shrimps and found in the shrimp liquor, on evaporating it, that there was a considerable amount of boric acid. Then, I took a sample of pickles from my grocer—pickles that I eat myself—and tested them and found in the vinegar of the pickles sulphurous acid to prevent that little growth of mold that is so objectionable to the consumer.

Mr. BURKE. To what extent did you find sulphurous acid in the vinegar that you have just spoken of?

Mr. KEDZIE. I did not estimate the exact amount, but it was very small. It takes very little to inhibit the growth of a mold in the vinegar.

Mr. ESCH. What determination did you reach in regard to cranberries?

Doctor WILEY. His analysis and ours agreed almost exactly.

Mr. TOWNSEND. Did you examine more than one specimen of the cranberries?

Doctor WILEY. We examined a large number. That is only a question, however, of analytical detail. I only present that, not to throw any doubt on the fact of the wide distribution of benzoic acid, which no one denies.

I also want to call the attention of the committee to Doctor Kedzie's expert testimony to the effect on his health, and ask you to compare the few samples of cranberries that he has eaten, and few samples of ketchups, with the careful determination which we have made. That is all. The rest is confirmatory of what Professor Kedzie says.

I say there that I am sorry that Professor Kedzie did not submit his methods of examination; and I would like to incorporate in the minutes the methods which we have used so he can review our work if he desires.

Mr. ESCH. Do you know of any other analysts who have found benzoic acid in these fruits?

Doctor WILEY. No; I do not. I have never seen any results excepting these of Professor Kedzie. We have looked very carefully through the literature.

Now I come to the most important testimony, that of Doctor Vaughan, and I shall ask the indulgence of the committee to speak at some little length on that important point.

The testimony that Doctor Vaughan introduced before the committee is by far the most important and valuable of any that in my opinion has been brought to the attention of the committee.

Doctor Vaughan's thorough training and large experience and scientific methods of work have fitted him particularly well to speak on a subject of this kind. I quote, therefore, with pleasure from his testimony on page 65.

I want to say, and I should have said in the beginning, that I am very anxious that Congress should do something to regulate the use of preservatives in foods. I think that the use of preservatives in foods may be and often is overdone and that great harm may come from their excessive use. The law requires of a physician before he can prescribe benzoic acid or sulphurous acid or anything of that kind a certain degree of education and that he must pass a State examination.

I am willing to stand with Doctor Vaughan on this one proposition, which I indorse in every word. Of course he must agree with me that if a physician, who of all men knows the responsibility which rests upon him in connection with his profession, is not allowed to prescribe benzoic acid until he has studied four years or longer in a medical college, received a diploma, and passed an examination before a State board of examiners, then surely no manufacturer without any education of a medical character, without ever having passed any examination, without having a single faculty of knowledge respecting the use of drugs, should be allowed to put any benzoic acid or any other drug of any kind in his foods. I think I might omit any mention of the rest of Doctor Vaughan's testimony with that simple statement of his, which covers the ground so absolutely and effectively.

Now, please let me restate that. Doctor Vaughan says that a physician is not allowed to prescribe even traces of benzoic acid, any benzoic acid, until he has passed his examination, received his license, and has examined his patient; yet he claims that any manufacturer at his will may prescribe any amount of it up to one-fourth of 1 per cent. Is that a fair and reasonable proposition?

Mr. BARTLETT. I don't think it is fair to Doctor Vaughan to criticise his testimony in that way. You take out one word, and we all know

how carefully he went over everything. I don't think that is a fair criticism, myself.

Mr. TOWNSEND. He was testifying, was he not, as an expert who had had experience with benzoic acid, and he stated, as an expert, as a physician, who was trained and experienced in administering this drug, that such an amount was not harmful. That is what he stated, is it not? He did not state that they should be allowed to use all that they saw fit; in fact, the trend of his whole examination was that this should be passed upon by a board of experts as to the amount that should be used. That was his conclusion.

Doctor WILEY. That is true. I only call attention to the basic proposition. He says in the beginning—I do not think it is unfair to quote Doctor Vaughan's words, word for word.

Mr. BARTLETT. Oh, no, I did not say that; but people can take a Bible and prove by words and quotations from it that they are justified in believing that there is no God.

Mr. KENNEDY. A doctor would not be permitted to prescribe anything as a doctor until he had been licensed, but I can prescribe if I do not charge for it. I can advise the use of meats and other things to be eaten, and so on, with profit and benefit, and I would not come within any prohibition of law, would I?

Mr. BARTLETT. No; not unless you prescribed for pay.

Mr. GAINES. Unless I did it as a doctor.

Doctor WILEY. The manufacturer charges for his goods; he does not give them away; and the doctor receives pay for his prescription.

Mr. ESCH. If a physician prescribed the amount which could be used without detriment, would it be dangerous to the manufacturer to use that or a less amount?

Doctor WILEY. I think so.

Mr. ESCH. Provided you could be sure?

Doctor WILEY. Yes; because the physician prescribes constantly very poisonous substances. A drug and a food are quite different things. The physician prescribes after his training and after an examination of the patient. The manufacturer asks legal permission to use the same drug that the physician does in his practice and to put it in the foods with certain restrictions, which, of course, would be proper if he is permitted at all. But I want to contrast the difference in the position of the trained man who uses a drug and the untrained man who uses a drug. I think it is perfectly fair, Mr. Chairman, to call the attention of the committee to that important distinction.

Mr. MANN. There is no difference of opinion between you and Doctor Vaughan on that subject, as I understand his testimony; you both agreed.

Doctor WILEY. We agreed in almost every particular. I indorse almost every word he said to this committee, absolutely.

The CHAIRMAN. Doctor Vaughan's statement, you will remember, was made after a manufacturer had testified that he put 6 ounces of benzoic acid in powder in a barrel of catsup and trusted to oscillations from the ordinary movement of that as freight to distribute it.

Doctor WILEY. Yes, sir.

Mr. CUSHMAN. As I understand your position, then, you agree with Doctor Vaughan's statement on technical points, but disagree with his conclusions?

Doctor WILEY. Yes; I don't think they are logical in those particular instances. I think all of his statements and his facts are without question so far as his examinations have gone.

Mr. BARTLETT. Do you agree with him that each one of us, in eating our daily food, consumes from 1 to 10 grains of benzoic acid? That is one statement that he made.

Mr. KENNEDY. He said that was formed in the human body.

Mr. BARTLETT. Do you agree with him upon that?

Doctor WILEY. I have never measured the amount of benzoic acid that may be formed by metabolic activity. We surely do not eat ten grains a day in ordinary foods, or even one. It is only in rare cases that you would eat one grain a day.

Mr. TOWNSEND. Where does it come from if his conclusion is correct that it is in the system?

Doctor WILEY. It is claimed by some physiologists that the benzol ring that I showed you yesterday—the product of destructive metabolism—that small quantities of the benzol radical might be formed in the system or unite with glyocol and form hippuric acid.

Mr. TOWNSEND. And would be eliminated by the kidneys?

Doctor WILEY. And would be eliminated by the kidneys; yes, sir.

Will Congress pass a law permitting physicians to prescribe a quarter of 1 per cent benzoic acid, or 10 grains or 30 grains of salicylic acid, or any quantity of boric acid, or any quantity of strychnine or of arsenic in patent medicines, without medical education and medical training and without studying the character of the condition of the patient to which it is to be given? I really do not believe that any claim of that kind would meet with a single vote of this committee or on the floor of the American Congress. And yet Doctor Vaughan, after having laid down a principle of ethics, broad, comprehensive, and indestructible, immediately proceeds to claim for a manufacturer, without any technical knowledge of medicine, the right to do exactly the thing which he says no physician by law should be allowed to do. Doctor Vaughan was asked about the proper law in regard to the use of preservatives, and very promptly says:

That brings up a very interesting point. If you will permit me, I would like to say just a word about that. I do not know that I am prepared to answer the question just now. It seems to me that that ought to be settled by a commission of experts, as to what preservatives could be used and in what foods they might be used.

Now, Mr. Chairman, let me ask, If Doctor Vaughan, with all his extensive experience, with all his work in pharmacology and physiology and chemistry, has not yet reached an opinion, where can you expect any commission or anybody else to be able to reach one? And, in view of that fact, can Doctor Vaughan or an other man logically come before your committee and ask to be allowed the use of a definite amount of certain medicines of the highest value, of which Doctor Vaughan himself says he does not know what quantity can be used, and which can not be used by a physician in any quantity without a license?

Then Doctor Vaughan goes immediately on and says, on the same page, that he "has an opinion," that he is "sure" that benzoic acid in the quantities in which it is used in catsup, sweet pickles, etc.—

1 part to 1,200 or 2,000—does not do any harm. He immediately says: "I should be opposed to the use of formaldehyde in milk in any quantity, or the use of any other preservatives in milk." Why, may I ask? If it is harmless in catsup, it is harmless in milk. If it is harmful in milk, it is harmful in catsup.

Doctor Vaughan also says: "I have testified repeatedly against the use of sulphite of soda on hamburger steaks. I am thoroughly in sympathy with the Hepburn bill." I desire the particular attention of the committee to this part of the testimony. Doctor Vaughan has said that a physician should only prescribe benzoic acid after training and license. He then says that he himself, with all his vast experience, has not reached any conclusion in the matter. He next says that he believes that the quantity used in tomato catsup does no harm. Then he says he is opposed to its use in milk in any quantity. I should think a jury would be somewhat confused by expert testimony of this kind. I believe, with Doctor Vaughan, that a physician should not be allowed to prescribe benzoic acid until he has shown the necessary qualifications. I believe, with Doctor Vaughan, that no preservative of any kind should be used in milk. I agree with him that sulphite of soda should not be used on hamburger steaks—three points on which we agree. I agree with Doctor Vaughan that I have not yet reached any conclusion as to the minimum quantities of benzoic acid which are harmless. Four points, logical, sequential, and on which perfect agreement is certain. Just what there is in tomato catsup which should except it from the logical sequence I beg some one to enlighten me.

It is impossible for me in any way to discover it. Doctor Vaughan states, on page 67, that nobody but a bacteriologist can decide how much of a preservative must be used to preserve a food, and therefore objects to the results of the experiments authorized by Congress. I beg to state to the committee that Congress never authorized the Secretary of Agriculture to determine how much preservative was necessary to preserve foods. All it did was to authorize him to study the effect of preservatives, coloring matters, and other substances added to foods upon health and digestion. In so far as I can see, bacteriology has nothing in the world to do with it. It is a question of physiological chemistry and pharmacology only, and it has been answered solely by the methods of those sciences.

I will explain in full these methods when I speak of the effect of borax. Doctor Vaughan states that the experiments with borax did not prove that it was injurious in small quantities, and when asked what he meant by small quantities he said, "One-half of 1 per cent." I suppose he means by that, in the foods. That is all he can mean. I will show you gentlemen that the amount of boric acid which we used and which produced most disturbing effects upon the health was far less than one-half of 1 per cent of the weight of the food used. Doctor Vaughan's statement in this respect is hardly the statement of an expert. It is his opinion of another expert's findings, and he adduces no evidence on which to base his opinion.

I may say to you that the Secretary has never taken up the subject of determining what preservatives shall be used in foods and in what quantities, as he is authorized to do by act of Congress. When he does, he will, under the authority of Congress, be able to call experts on these subjects who shall be able to help him to a just decision.

All the Secretary of Agriculture has done so far is to determine the effect of preservatives, coloring matters, and added substances to foods upon health and digestion. These experiments have been conducted in the manner which I shall soon relate to you.

No board of experts could come in and help another expert decide what his own experiment taught him. That would be quite an impossible thing to do. Doctor Vaughan would resent five men going into his laboratory and telling him what the result of one of his own experiments was. He, being a man of judgment and tact and knowledge, alone can decide what his own experiments have taught him, and then when he submits the data on which his judgment is based the board of experts can come in and criticise the data and reach another conclusion. The data on borax, which was used in the experiments which I will soon describe, are here before you. Every fact in connection with that investigation is set forth, every analysis has its data, every event connected with the conduct of the experiment, which lasted nine months on twelve young men, is set forth in detail. Doctor Vaughan did not attack a single fact nor deny its accuracy in all this mass of material, and then, without doing this, says:

Doctor Wiley has made a report on boric acid as to preservatives, and while I am a personal friend of Doctor Wiley's and appreciate him very highly and think greatly of him, his experiments have shown that boric acid in large amounts disturbs digestion and interrupts good health, but they have not shown that boric acid in the small quantities which should be used as a preservative, if used at all, has any effect upon the animal body.

Now, Mr. Chairman, I do not see how Doctor Vaughan, after reading my report, could make a statement like that. He certainly did not read it carefully. I therefore take this opportunity to lay before this committee at this opportune moment a synopsis of the results of the work which has been accomplished under authority of Congress in feeding borax and boric acid to young men in splendid health and to place before you the proof of the deleterious effects which even small quantities—far less than one-half of 1 per cent—produce. I will supplement this also by a similar statement from the chemists and physiologists of the imperial board of health at Berlin, which fully confirms in every particular every conclusion reached by my own experiments, and candidly ask the consideration of this committee of these two reports.

Now, that shows how close our agreement is, as I have already stated to the committee, and I would like to repeat it here: That if benzoic acid is harmful in milk, and Doctor Vaughan admits it, in any proportion, there is no logical reason that I can see why it is not harmful in any other food. I admit the argument, however, that it may be placed there and produce a benefit. Then we could say that it was placed there to correct some other and a greater evil, and on that ground alone would I advocate the use of preservatives in food, and not that they are harmless. I do not see, gentlemen, how anybody can ever admit the use of preservatives in food on such testimony as Doctor Vaughan has given, and I will rest it right on his words, on the ground that it is harmless. But you could very justly, as I said yesterday, admit it on the ground that it is less of two evils. That is the point that I wanted to insist upon.

Mr. TOWNSEND. Have you changed your mind on that subject in the last few years?

Doctor WILEY. Yes, sir; very materially. I formerly believed that certain preservatives could be used, as Doctor Vaughan believes now, simply by having the people notified on the label. I was strongly convinced of the truth of that proposition. I have, before committees in Congress and in public addresses, stated those sentiments. I was converted by my own investigations, Mr. Chairman, and by nobody else's in this matter. My former opinion was based upon the weight of expert testimony. I read the opinions of men that I respected, and the weight of that opinion was in favor of the position which I have just stated. I inclined to that view. And I will state that Doctor Vaughan's association with me was one of the things that led me largely to adopt that view.

Afterwards I made these investigations of which I have spoken; and then I could not conscientiously, without doing violence to my deliberate judgment, urge that the addition of a preservative to food was harmless in any quantity. I do admit that it can be added to secure a benefit on the grounds that I have stated. I simply want to make my ethical position in this matter plain before the committee, not that I would banish the use of preservatives by any means. And I want to present a little testimony that I did not think of presenting, which covers this subject exactly as to the position that I have taken. This is some correspondence with the Commissary-General of the Army which was had since the publication of my bulletin on borax. I have here a letter from the Commissary-General of the Army, dated March 22, 1905, which I will read:

WAR DEPARTMENT.
OFFICE OF THE COMMISSARY-GENERAL,
March 22, 1905.

Prof. H. W. WILEY,
Chief Bureau of Chemistry,
Department of Agriculture, Washington, D. C.

MY DEAR DOCTOR WILEY: I inclose herewith a letter from Lieut. Col. A. L. Smith, deputy commissary-general, chief commissary at Manila. You will see from its contents that he wants us to ship our uncured bacon so that the curing will be done in Manila. This plan is perhaps based on the scheme practiced by Sir Thomas Lipton, who ships bacon from Omaha and Chicago to England and cures it, and I presume in a satisfactory way. Because of losses on experiments already tried, Colonel Smith wishes the bacon that is packed in boxes to be sprinkled with borax.

This meat will be at least six weeks in boxes, quite a sufficient time to have the borax entirely absorbed. Colonel Smith is of opinion that it will be washed out in the preparation. I do not exactly agree with him in that. If borax was sprinkled on the meat and washed off within a day or two, before it was thoroughly absorbed, before complete saturation had taken place, then I can readily imagine that washing would eliminate it; not so when thoroughly absorbed, as it certainly would be if each piece was sprinkled and packed in boxes containing about 250 or 275 pounds net. I think the absorption would be complete and that it would be with great difficulty that the borax could be eliminated from the meat. Colonel Smith refers to Mr. Lunham and to some of your publications. It would appear that this authority would not hold good under your conclusions in your book on boric acid and borax published last year.

I do not like to bother you, my dear Doctor Wiley, about matters of this kind. It takes up too much of your time, but the question is very important to us and we can not, in the face of your opinion, undertake to ship meat out there sprinkled with borax without hearing something from you. The present mode of shipment is by curing in Chicago; no borax is used in the preparation of the meat. This meat goes to Manila and is distributed, and the only thing really

against it seems to be that it is a little salty, necessarily so from long curing. Anyway, there is no risk about the present method, and the new scheme involves the use of borax, with which the meat becomes saturated, and the getting it out with the impure and thickly populated hydrant water of Manila might probably perform the trick of putting in more poison than it took out.

Will you please let me have your opinion as to the use of the borax as suggested by Colonel Smith?

Kindly return the inclosed letter with your reply.

Very respectfully,

J. F. WESTON, *Commissary-General*.

To which I replied on March 25, 1905, as follows [reads]:

MARCH 25, 1905.

Gen. JOHN F. WESTON,
Commissary Office, War Department.

DEAR GENERAL: I have your interesting letter of the 22d instant, with the inclosure of the letter from Lieutenant-Colonel Smith, dated at Manila, February 9.

I have always taken the position that the use of borax for the curing of domestic meats is absolutely unnecessary and harmful. However, in my public addresses and otherwise I have always recognized the fact that there are emergencies where the use of borax is desirable, and the case presented by Colonel Smith seems to be one of these emergencies. I would not deem it, therefore, an adulteration if, for the preservation of this meat, a reasonable amount of borax be employed. I agree with you that Colonel Smith's contention that the most of the borax would be removed by washing is untenable. It is just as well to face the facts in this case and to recognize that the greater part of the material would be distributed through the mass of the meat and would not, therefore, be removed by superficial washing.

It is a common practice for English merchants, in ordering meats from this country, to specify that they shall be packed in borax—that is, that borax should be applied externally to the packages when prepared for shipment. I believe that you could send cured bacon, properly smoked, from this country to Manila sprinkled with borax, and that the greater part of this borax would be removed by washing before consumption. The smoked meat, being very dry and having its exterior somewhat toughened by the application of the smoke, would absorb very little of the borax. Just how much would be absorbed when packed in salt sprinkled with borax, as suggested by Colonel Smith, I am unable to say, but I am of the opinion that a very large portion of the borax would enter the meat. I do not see how uncured bacon—that is, unsmoked—could bear the transportation from here to Manila better than the smoked bacon.

I think it would be highly interesting to send a box of smoked bacon in which each piece was well dusted with borax before packing and then a little borax dusted over the top. My impression is that almost the whole of this borax could be removed on arrival. I would also think it interesting to pack a box of bacon, as suggested by Colonel Smith, and leave it in a place where it would have about the same temperature as the hold of a ship going to Manila for the time required for the transit, and then have it examined to ascertain the amount of borax absorbed. We will gladly undertake all the chemical examinations in any experiments which you wish to make in this line. Meanwhile, I would say better than deprive the men of bacon it would be reasonable to follow Colonel Smith's suggestion, at least for the time being.

I return Colonel Smith's letter herewith.

I am, respectfully,

H. W. WILEY, *Chief*.

Mr. TOWNSEND. Yesterday did you not testify—I so understood you—that salicylic acid was the least objectionable of preservatives?

Doctor WILEY. The least objectionable of the two that I have finished my examination of—that is, borax and salicylic acid—and apparently of the others we have studied. My impression is that it is less objectionable even than benzoic acid.

Mr. TOWNSEND. Have you changed your mind on that?

Doctor WILEY. Since yesterday?

Mr. TOWNSEND. No; at any time?

Doctor WILEY. I used to think that salicylic acid was the most deadly of all preservatives, as the majority do yet.

Mr. TOWNSEND. That goes to show that chemistry is not an exact science, does it not?

Doctor WILEY. It goes to show, Mr. Townsend, that when you form opinions on other men's opinions that you may reach an erroneous one, and that when you make your own examination then you can correct an opinion previously formed.

Mr. TOWNSEND. Those other gentlemen are honest. You don't doubt that Professor Kedzie, Doctor Vaughan, or Professor Kremers are honest, and that they have testified honestly in this case, do you?

Doctor WILEY. I certainly do not.

Mr. TOWNSEND. That shows that wise men differ on these questions.

Doctor WILEY. Very much. Indeed it does, and no one is trying to conceal that fact, I am sure.

Mr. TOWNSEND. I am not criticising that at all.

Doctor WILEY. What I want to get at is, as far as possible, the truth, and then you can weigh the evidence.

Mr. MANN. Please go ahead with your statement regarding your correspondence with the Commissary-General, and say what was done about that.

Doctor WILEY. The Commissary-General replied to my letter of March 25 as follows [reads]:

WAR DEPARTMENT,
OFFICE OF THE COMMISSARY-GENERAL, *March 27, 1905.*

DR. H. W. WILEY,

Chief Bureau of Chemistry,

Department of Agriculture, Washington, D. C.

MY DEAR DOCTOR WILEY: Your letter of March 25, anent the shipment of bacon sprinkled with borax, with the inclosure from Lieutenant-Colonel Smith, is received.

I am afraid that I haven't put the case sufficiently clear. The question is not that the men can not get bacon. They have been getting it since 1899—what is called the dry-salt cure, which is cured in accordance with the requirements of Circular No. 9, this office, of November 19, 1901 (copy inclosed), from Sections I and II of which it will be seen that the bacon is in the salt cure for thirty days, during which time it is turned and resalted twice. After this cure it is dried out for three days, then smoked for seven days, and then dried out for three days before being wrapped and packed. The circular referred to contains the full specifications regarding the cure and inspections required.

We lose none of this bacon in transit. Such losses as we have in it comes from keeping it too long on hand in Manila before it is issued. No borax is applied to it at all—the long curing and smoking appear to keep it all right. There is a pronounced difference between shipping bacon to England and to Manila—in one case it takes about six days and in the other not less than six weeks.

Lieutenant-Colonel Smith thinks that this bacon, because of the process of curing, is a bit too salty, and that it has not the flavor of meat of less cure. No doubt this is the case, but meat of less cure won't stand. Now, he proposes to ship meat partially cured, unsmoked and sprinkled with borax; then wash and smoke it there. What I fear is that the borax in itself is not good for the stomach, and that the process of washing in Manila, after it has been in contact with the bacon for at least six weeks, the bacon would still retain it.

Because of troubles during the Spanish-American war with reference to food adulterations, I would have to be well assured by a chemist of no less authority than yourself before I would go into the borax business. If you think it is safe, I will do it; but without resorting to this method, the troops will still be supplied with bacon cured as heretofore, in the manner prescribed in the specifications accompanying.

Very respectfully,

J. F. WESTON,
Commissary-General.

Doctor WILEY. Now, of course, it was "up to me" to make a decision. I had simply to stand by the results of my investigations and I replied [reads]:

MARCH 30, 1905.

Gen. J. F. WESTON,

Office of the Commissary-General, War Department.

DEAR GENERAL WESTON: My conscience will not allow me to recommend the use of borax in shipping meats to the Philippines. You say the ordinary meats reach there in fairly good condition; hence there seems to be no excuse for resorting to the method of preservation which, it seems to me, should be used only in emergencies which can not be met in any other way. In view of the data contained in Bulletin No. 84, part 1, which is in your possession, I could not, as you see, recommend the use of borax for the purpose which you set forth. In my opinion its use would subject your department to a good deal of adverse criticism, which would apparently rest upon a pretty sound basis. You ask me frankly for my opinion, and I give it frankly. I thank you for your Circular No. 9, which is extremely interesting.

I am, respectfully,

H. W. WILEY, *Chief.*

Now, I want to introduce the borax bulletin in evidence; not to have it copied, but simply to have it as an exhibit, because all of you have copies in your desks. That will answer the question which was asked me yesterday about the kind of work done by these young men. You gentlemen need only to glance through this book of 477 pages to see the amount of labor that has been put upon this investigation.

Mr. TOWNSEND. When did you begin your investigation of boric acid?

Doctor WILEY. In the autumn of 1902.

Mr. TOWNSEND. How long were you experimenting on that?

Doctor WILEY. We were from the 1st of October to the 1st of the following July.

Mr. TOWNSEND. About nine months?

Doctor WILEY. Yes, sir.

Mr. TOWNSEND. How soon after that did you make a report?

Doctor WILEY. On the 25th of June, 1904; just about a year after the close of the investigation.

Mr. TOWNSEND. You did not publish it in 1903?

Doctor WILEY. We published a synopsis—a preliminary report—in 1903.

Mr. TOWNSEND. You said yesterday that you had not had time, as I remember it, or had not been able—I don't remember just exactly how you answered it—to report your investigation of benzoic acid, which had only occupied three months and which was completed in the fall, as I remember it, of 1902.

Doctor WILEY. On benzoic acid?

Mr. TOWNSEND. Yes; benzoic acid.

Doctor WILEY. The benzoic-acid investigation was not begun until the fall of 1903, and was completed some time in 1904.

Mr. TOWNSEND. Are you sure about that? As I took it down yesterday in a note, it was begun in the fall of 1902.

Doctor WILEY. Then you misunderstood me; it was not. I was referring to the time I commenced the first investigation.

Mr. TOWNSEND. Then I misunderstood you. Who assisted you in making those investigations on borax and benzoic acid?

Doctor WILEY. About twenty or twenty-five men besides the subjects.

Mr. TOWNSEND. Were any of them of national reputation as scientists?

Doctor WILEY. Doctor Bigelow, who is here, is a man of a good deal of reputation. He is the one who collaborated with me in particular. The others are chemists in fair standing, but they are not men of great reputation in a personal way.

Mr. TOWNSEND. Connected with the Department?

Doctor WILEY. Connected with the Department of Agriculture here; yes, sir. I will explain the method of investigation briefly, because I know you gentlemen do not care to read this voluminous document.

The young men were selected mostly from the Department of Agriculture—I believe the first were all from the Department of Agriculture. They were young men who had passed the civil-service examinations, and therefore came to us with a good character, as is usual in such cases. These young men were volunteers. We explained to them fully the character of work that we proposed to do, not particularly stating what we were going to give them, or how, but what our general purpose was, and that was to place in good wholesome foods, certain quantities, which we were to select ourselves, of the ordinary preservatives and coloring matters used in foods, and to feed them on these foods with such materials in them.

Mr. TOWNSEND. Exclusively with those materials?

Doctor WILEY. Oh, no. I will explain, and you will understand how we did it. These men signed a pledge in which they agreed on their honor to carry out all the necessary regulations. They signed a pledge to eat nothing or drink nothing excepting what we gave them at the table. They signed a pledge to pursue their ordinary vocations without any excesses and to take their ordinary hours of sleep. They agreed that they would collect and present to us every particle of their secreta, so that none of it should be lost, and to follow out the rules and regulations necessary to carry out the conduct of the work.

Mr. ESCH. Did you require any physical examination?

Doctor WILEY. Yes, sir; we had a surgeon detailed from the Public Health Service, who examined all of these men physically and saw that they had no disease, and that they had had no disease within a year, or any sickness of any kind.

Mr. TOWNSEND. They were allowed to live at their homes?

Doctor WILEY. Yes, sir.

Mr. TOWNSEND. How did you collect their perspiration?

Doctor WILEY. Perspiration was not collected excepting in one case. We collected perspiration in one case to determine how much borax was exuded through the skin, but in no other.

Mr. BARTLETT. You had a release if they died?

Doctor WILEY. Yes, sir; from any injury that they might receive. That was their preliminary work. The first thing which we did was to ascertain, by their own choice largely, the character of good wholesome foods to be used, absolutely free of adulterants, a natural diet which would keep their bodies in a state of equilibrium so that neither the question of added weight or of losing weight—that is to say, in a fore period, which was a period of about ten days, the body was weighed every day, the amount of food which they ate was weighed, and if they gained a little we cut it off, and if they lost a

little we added a little to it—so that by the end of ten days we could get their normal ration. Meanwhile their excreta was collected and analyzed, so that we had a complete check on the normal metabolic process by which the food was utilized in the body and the refuse matter excreted. You will understand that the only excretions that we got were the urine and the feces. All of the others were so small in proportion to the whole mass that they were neglected; in fact, it is impossible to get them; no one has ever attempted it. Then we began by adding to the food one of the common preservatives—borax was first. We had twelve young men, and to six of them we gave borax in the form of boracic acid, and to the other six borate of soda, to see if there was any difference in the effect of those two forms of borax attending the metabolic process.

MR. TOWNSEND. Did you explain that this was a dangerous process?

DOCTOR WILEY. We told them that they might receive some injury from it.

MR. TOWNSEND. That is the reason you took a release?

DOCTOR WILEY. We certainly would not ask the young men to submit to it without an explanation. We told them, of course, that there was no danger by poisons, but that there might be some disturbance to their systems.

MR. TOWNSEND. You thought that there was nothing; but you took a release because there was danger of losing life, in a sense.

DOCTOR WILEY. Yes, sir; we kept nothing from them at all.

MR. TOWNSEND. Do you think that had any effect upon them?

DOCTOR WILEY. We discuss that in the book. That has been one of the objections urged against this work, and it would be urged against any work of the same kind.

MR. CUSHMAN. Is that the bunch known to the public as the "poison squad?"

DOCTOR WILEY. That is the one. I suppose it was the most widely advertised boarding house in the world.

Now, when we had established their normal diet, then they agreed to eat it every day whether they wanted it or not, because that was the important part of the experiment, that the food ingestion must be constant, otherwise you could not study the effect of the added substance on metabolism.

MR. TOWNSEND. Do you explain the effect in your book?

DOCTOR WILEY. That is all explained in the greatest detail.

Now, of course, they did that as long as their digestion was not impaired. When it did become impaired they were released at once from any further administration of the drug. That was all we wanted to do—to get the first effects, never any more. We did not carry it to any extreme. Once a man was undoubtedly affected he was released. You may ask how we knew how any disturbance produced was due to borax, and I answer because we eliminated all the variables but that one. In the case of the man who had led the same life, pursued the same vocation, eaten the same food, and who did the same things, the only variable was the preservative; so that if the variations are those which would be expected to be produced by such a variable, we logically traced the result of those variations to that one variable, and especially so if when we withdrew it the disturbance was removed. Then the symptoms which had

ensued would be removed, and that was additional proof. Therefore as far as possible we ruled out every influence excepting the one which we were controlling. Then we had what we called "periods" of five days, so that we studied them in periods of five days. We called it the first preservative period, the second preservative period, and so on, until we had usually the preservative periods lasting for about twenty days. That was the usual rule. That was followed by a period in which nothing but pure food was given for ten days, the object being if possible to restore the man to the normal state. I will say very frankly that ten days as a rule was not long enough to do that; but as they then had a holiday and rested for some time, it didn't make so much difference to us.

MR. TOWNSEND. What do you mean by a holiday?

DOCTOR WILEY. We kept our table going all the time, but when a man had worked for about forty days on these experiments we then allowed forty days' rest, the same time that we had been working on him.

MR. BARTLETT. That is, you discontinued this character of food.

DOCTOR WILEY. We gave him then nothing but pure food. We did not have to measure his food or collect his excreta; and he simply rested and got ready for another trial.

Now, in our first year's work we only fed six men at a time, so that we had constant observation—six men on holiday and six men on observation—but in subsequent investigations we found it much more convenient to feed all of the men at the same time and give them the holiday at the same time. That appears from the fact that the chemical work, so far as analysis of foods is concerned, is just as great for six men as it is for twelve, because we did not analyze each person's food, but the food which we gave all, so that we knew the composition of it. Therefore one analysis would do for a hundred men just as well as six. But the excreta that was turned in had to be analyzed separately—that is, every day, or the composite for a number of days, whichever seemed desirable.

MR. TOWNSEND. When you examined that excreta did you examine for any other substance besides boric acid or benzoic acid?

DOCTOR WILEY. In the digestion of food the process is of two kinds. We have what is called metabolized food and nonmetabolized food, which is found largely in the feces. Parts of the feces never enter the system at all; they are the refuse matter, and therefore we say that they are nonmetabolized. We simply wanted to determine how much protein, how much fat, how much sugar, etc., had come out in the feces and had escaped digestion. Then we examined the urine, which contains the principal part of the degradation products of the metabolized food. When the food enters the system, after the process of digestion, it has two great functions, as you gentlemen know. One is to supply heat and energy. That food is all burned up and converted into water and carbon dioxide, just the same as you burn a piece of coal in the fire and convert it into carbon dioxide and into water. And the great mass of food which we eat is burned in the body and produces heat and energy. Of course the water and the carbon dioxide that come from the lungs and the skin we did not collect.

Then the food which goes to build the tissues, or enters into the tissue, pushes out the degradation products in the same quantity

when the body is in equilibrium, just as you fill a tube full of marbles, and when you put one marble in it you will push out another at the other end. Now, if I feed you on nitrogen to-day or to-morrow, when I go to determine the nitrogen in your urine I do not determine the nitrogen that you have eaten to-day or yesterday, but if your body is in equilibrium the amount of nitrogen pushed out is exactly what you push in. That is what we call the balance, and in that way we can determine whether any substance added to the food disturbs the metabolic process and interferes with digestion. And you can only determine it in that way. The amount of disturbance is so slight that you will never notice it and yet so pronounced that our chemical balance will reveal it.

Mr. BARTLETT. Doctor, I see in the bill of fare that you give here that some of the gentlemen took cranberries. What did you add to the cranberries, anything?

Doctor WILEY. No, sir; we took cranberries without anything. We did not add any benzoic acid to those. I say that we used the ordinary foods, a plain ration, so that each man would eat on the same day the same number of calories, the same amount of nitrogen, the same amount of phosphoric acid, the same amount of sulphur. We gave an excellent food, the very best of the retailed canned goods. I will say that nearly all of our vegetables are canned vegetables. That shows our attitude toward canned foods, which has been said to be very hostile. We used them because they are more uniform in character, and when put up by reputable firms are apt to be better than the vegetables that you can buy in the open market. Our canned foods were canned to order, so that all that we used during the year were exactly alike. And so important was that fact in the eyes of an enterprising advertiser that he went to one of the firms that sold us these goods—we didn't buy all from one firm—and wanted them to pay him hundreds of dollars to write articles saying that we were using his canned foods. Of course, he promptly refused to allow his name to be used.

Mr. LOVERING. Did these young men know when they were eating pure food or not, and in what proportion?

Doctor WILEY. They did not know what it was, necessarily, or how much. That was our business. All they knew was the fact that they were using something.

Mr. MANN. For a long time the daily papers published what they were being fed upon.

Doctor WILEY. You can not always rely upon newspaper accounts of scientific investigations.

Mr. MANN. I suppose the young men read the accounts, and if you did not tell them exactly what they were being fed they might have thought they were being fed on something else.

Mr. RYAN. This so-called "poison squad" was selected from employees of the various departments.

Doctor WILEY. Almost altogether from the Department of Agriculture. We had a few from the other departments, however, and a few from a medical school.

Mr. RYAN. Did they receive additional compensation for entering into this?

Doctor WILEY. Not those that were in our Department. Those that came from the outside were paid \$5 a month in addition to the

other. We had to give them some compensation; they could not serve in the Department under other circumstances, because it was illegal. We gave them a mere nominal sum so as to make their employment legal. We would not take anybody who was not in the Department in some capacity.

Mr. BARTLETT. Did you use real butter or oleomargarine?

Doctor WILEY. The butter was made to order, and contained neither salt or coloring matter—pure butter.

Mr. ESCH. How about milk.

Doctor WILEY. The milk came from inspected dairies, inspected by the District authorities and by myself.

Mr. ESCH. Did you at any time adulterate the milk?

Doctor WILEY. We sometimes put the preservative we used in the milk.

Mr. BARTLETT. Formaldehyde?

Doctor WILEY. Formaldehyde we did constantly, and borax part of the time.

Mr. ESCH. How did the health of these men continue; have you any statistics on that?

Doctor WILEY. That is all here; everything is recorded in full.

Mr. CRISHMAN. Can you tell, in a general way, some of the symptoms, or would that be interrupting the effect of your remarks?

Doctor WILEY. If you would like a résumé of the borax matter, I will give that in a few words. I will take the experiment where we gave a minimum quantity, such as you would ordinarily get if you ate meat and butter containing one-half of 1 per cent of borax, in the ordinary quantities of meat and butter and other preserved foods which a healthy man would eat. With the ordinary quantities of butter and meat preserved with borax there would be consumed about $7\frac{1}{2}$ grains of borax per day by each individual; and so we fed that for sixty days in succession, beginning with the preliminary period of ten days, then following sixty days in which we gave the borax.

Mr. MANN. How much borax?

Doctor WILEY. Seven and one-half grains a day. That was given in two doses. Part of the time in one dose, and part of the time we divided it and gave $3\frac{3}{4}$ grains at one time and $3\frac{3}{4}$ grains at another time.

Mr. TOWNSEND. How did you give it?

Doctor WILEY. In butter and in milk and in capsules. We tried all methods.

Mr. BARTLETT. Did you give any tomato catsup with any of these meats?

Doctor WILEY. I don't think we did.

Now, I want to say this, because I regard it as important. For fifteen or twenty days, or even longer in some cases, no visible effects were produced in what you would call "symptoms." The young men had normal appetites and performed their work without any discomfort, and had no complaints. After that time they began to eat their ration with some little discomfort. They were under obligation to do it, but they often said: "I wish you could let this go; I don't want it." Their appetites began to fail. At the end every one of their appetites were very badly affected, and some of them were unable any longer to eat the full amount. Of course we never re-

quired anything that was impossible. They developed persistent headaches in most cases, followed by general depression and debility. It was extremely well marked in every instance.

Mr. KENNEDY. Did they get nauseated and want to refuse the food with the preservative in?

Doctor WILEY. They were occasionally nauseated. We had every variety of food that anybody commonly eats. We varied their menu every day.

Mr. KENNEDY. Did the boys seem to get tired of it; did they want to refuse the food?

Doctor WILEY. That is the reason we had to resort to capsules, because the very moment he found it in the milk or in the butter he didn't want to use the butter. I would say that this is all set out in here. We were led to the use of capsules because of the objections to which you refer. It may be all wrong, but that, of course, is a matter for you gentlemen to decide.

Mr. ADAMSON. When they took the food, did it have some effect on the appetite?

Doctor WILEY. It had a worse effect in the food when they knew it was in the food, because it became repugnant to them.

Mr. KENNEDY. Don't you think this repugnance is nature's own method of correcting these things? I remember that out in our town two fellows made a wager with another fellow that he could not eat a quail a day for thirty days in succession. He did it, but it made him sick. That was because there was nothing wrong with the quail, but he was taking it too constantly.

Doctor WILEY. There is a great difference between a quail and borax; the latter is a drug.

Mr. KENNEDY. A man's life was imperiled by his trying to win that bet; he became very sick.

Doctor WILEY. I will answer that by saying that it is the universal experience of physicians that the drug habit grows; the more drug you take the more you need to produce the effect, and the less its effect; so that it is just the opposite to the effect that you mention.

Mr. TOWNSEND. Did you try the same experiment with benzoic acid?

Doctor WILEY. Not for so long a time, but a shorter length of time.

Mr. TOWNSEND. But on the same plan?

Doctor WILEY. The same plan. That will be fully brought out in the publication.

Mr. WANGER. Was there, at the end of the period of the administration of these preservatives, an immediate relief and restoration of the appetite, or was that a slow process?

Doctor WILEY. Unfortunately the effects in some cases were very much prolonged. Some of the young men—the experiments ended in July, or in June, the end of the year—and some of the young men complained even through the summer, and it was late in the autumn before they recovered their full normal appetites.

Mr. WANGER. That would furnish a strong presumption that it was not the mental idea connected with the daily use of the preservatives that caused the loss of appetite.

Doctor WILEY. It might be that the mental attitude was a strong factor, but when you get used to a thing after three or four days the

mental attitude becomes less important. And I got a beautiful illustration of that in our own investigation, because I realized that a very reasonable objection is made against experiments of this kind, against all pharmacological experiments, by reason of the mental attitude of the patient, and I give full credit to the objection in the book, which you will see. I discuss that fully and frankly, and give value to the objections.

But this strange thing happened when we came to salicylic acid. We had an almost new set of young men. We had a few that had come over from the borax period, but one year of this kind of life is as much as a young man wants. They enlisted for a year. So we had a new list. They must have had the same attitude toward salicylic acid that the first set had toward borax, and yet when we began to feed them salicylic acid there was an immediate improvement in the appetite; most of the young men seemed better, wanted more to eat, and it had exactly the opposite effect that borax had. Now, if it had been mental attitude in both cases the effect upon these men would have been the same. But we had the opposite effect. So I think that is the most happy proof. It came instantly, unexpectedly; we were not looking for it. The effect of the mental attitude, which must be considered, does not have the great importance that has been ascribed to it.

MR. TOWNSEND. These men made releases?

DOCTOR WILEY. Yes, sir.

MR. TOWNSEND. How do you explain the effect of a drug—the fact that the constant use of it inures a person to it?

DOCTOR WILEY. I think that is easily explained. As you get used to the effect of a drug you never improve in health. The man who forms the opium habit takes more and more of the drug, but his health goes down all the time. You can tolerate more of the drug, but your health is going all the time, and it takes more of the drug to produce a given effect.

MR. MANN. You say that in the experiments with borax the effects continued some time after the feeding of the borax to the young men, so that there is a cumulative effect of borax upon the system?

DOCTOR WILEY. I referred to that yesterday, and I will restate it. Professor Rost, of the imperial board of health of Berlin, whose work I have here, criticised our work because we said that practically all of the borax was eradicated from the body after ten days. He contends that a lot of it remains in there for a longer time and comes out in the waste material a little at a time for weeks and months, so that his testimony is very much more in favor of the cumulative effects of those substances than our own.

MR. TOWNSEND. Have you tested for that?

DOCTOR WILEY. We have made some tests on that during this last winter, but I have not as yet collated and studied the data.

MR. MANN. Does your report show that in your opinion the use of borax has a deleterious effect upon the organs of the body?

DOCTOR WILEY. Of course you understand, Mr. Mann, the tests that we have made are not the same as those made upon animals fed for pharmacological experiments, because after a given time the animals are killed and their organs are examined, and the changes in the cells are studied by the microscope. We were precluded from doing that.

MR. MANN. Is that your conclusion?

Doctor WILEY. My conclusion is that the cells must have been injured, but I had no demonstration of it, because I could not kill the young men and examine the kidneys.

Mr. MANN. Your judgment was that the borax was excreted from the body; it did not remain, but that the effects did remain? How else could the effect remain excepting in some way affecting the organs of the body?

Doctor WILEY. I think it must have affected the organs of the body. I think that is conclusive proof of it.

Mr. ADAMSON. Is the process of resolving these foods into their original elements so difficult that scientists can not furnish the people any practical method of safely separating preservatives from food when they get ready to use them?

Doctor WILEY. It is quite impractical to separate the whole of any preservatives from food, though it probably can be done.

Mr. MANN. Does it make any difference how borax is administered, whether administered by itself or administered in connection with foods, and is there a difference in the effect between the administration of a preservative in milk or in some kind of solid food, for instance?

Doctor WILEY. The ideal way to administer substances of this kind would be in solution in the food. But that has such practical difficulties that in almost all pharmacological experiments like these which have been performed by the thousand in the world, the method which we finally adopted as the best has been adopted—that is, the introduction of the substance into the stomach in the form of capsules, where nature quickly mixes it entirely up with the contents of the stomach.

Mr. MANN. Do not some scientists think that there is a difference in effect whether it is administered in one food or another?

Doctor WILEY. That is the objection I have seen in scientific publications and in the public press urged against our work by Mr. H. H. Langdon, who has written a great many letters condemnatory of the work. Mr. Langdon, as I have learned, is employed by the borax company to do this work. He has called attention to that point in the public press.

Mr. MANN. Was that considered in the report of any British committee?

Doctor WILEY. Not that I know of; I never noticed it. I have the report of the British committee, but I have not noticed it.

I submit now, which is for the record, the conclusions reached by the imperial board of health of Berlin on experiments of the same character, though not nearly so extensive as ours, and which corroborate I will be frank with the committee, that when I read those conclusions unless some member prefers; but they are almost identical with those which we have drawn ourselves. I will confess, Mr. Chairman, and I will be frank with the committee, that when I read those conclusions of the imperial board of health I did not think they were correct. I was inclined to criticise them, and I fear that I made an imputation against the imperial board of health, which now I wish to withdraw, and that is that they had made those experiments at the demand of the agrarian political party of Germany for the purpose of excluding American meat. It looked to me that this conclusion had been reached for this purpose.

I am sorry that I did impute such motives to scientific men; but when I found that my own investigations so absolutely corroborated those which had been secured in the imperial board of health I was ashamed of myself for ever having doubted their motives. I am resolved that I never again, as long as I live, will impugn the motives of scientific men at all for any purpose, and I never shall, because every time I have ever done it I have been wrong. I believe that scientific men in this country—and I don't care where they appear or who employs them—are above suspicion of that kind.

GERMANY—IMPERIAL HEALTH OFFICE.

[Works, vol. 19, 1902, p. 1.]

The effects of boracic acid and borax on human and animal bodies, with special reference to their application to the preservation of food.

[Article by E. Rost.]

Page 55: Results of the laboratory experiments and their application to the critical estimation of boric preparations as preservatives.

1. A specific influence on the digestive enzymes is not due to boracic acid and borax; the activity of the enzymes is simply lessened by the lower degree of acidity of boracic acid or by the alkalescence of borax. The amounts of borax usually added to milk exert such a strong preventive power on curdling that when 1 gram of borax is added to a liter of milk rennet does not curdle the milk for one hour.

2. Local effects, consisting in the reddening, inflammation, and corrosion of the stomach and the upper part of the intestines, are manifest only when the boric preparations are administered in large quantities and in concentrated form, and especially with the animals that can not protect themselves from an irritating amount by vomiting. Unless they are administered in large quantities boric preparations have not been found irritating to other mucous membranes nor to serous membranes.

In medium doses boric preparations produce diarrhea. They diminish the ability of the intestines to assimilate albuminous food. This effect is apparent upon the administration of small doses, 0.5 gram.

In a series of experiments on two dogs and on five adult healthy persons (seven experiments with 3 grams of boracic acid or borax) the results concerning metabolism agreed in every case. Boric preparations cause a decline in the weight of the body; sometimes this loss of weight becomes suddenly rapid and dangerous. This loss of weight is not sufficiently accounted for by the property boracic acid has of increasing the secretion of the urine. The condition of the subjects of the experiments during and after the administration of boracic acid showed that this emaciation was most probably due to an increased absorption of the fatty tissues, and this supposition has been verified by experiments in the respiration calorimeter.

The complete elimination of boracic acid from the body goes on very slowly; it may extend over several days, and in the case of people who have kidney diseases it may take weeks, so that if boracic acid is administered frequently there may arise danger from the cumulative effect of the doses.

In cases of poisoning from boric preparations the cause of death is an increasing central paralysis, aggravated by a lowering of the temperature caused by violent diarrhea.

Boracic acid and borax are not different in their effects, except that their reaction on the mucous membranes is not alike. The local effects of borax are more manifest than those of boracic acid. Their power of absorption is the same in different parts of the body, and they are alike in their general effects, especially in their elimination through the kidneys, in the way they cause eruptions of the skin, etc.

Boracic acid and borax, when used in quantities exceeding a small fraction of a gram, are not to be regarded as harmless substances. In considering the value and admissibility of these preparations for keeping food the most important point to be considered is that, according to the experiments, the loss of fat and the increased secretion of fluid goes on unnoticed by the persons consuming borax and boracic acid. In addition should be considered the change

in milk by the addition of borax, curdling being rendered almost an impossibility. The public can not detect by taste or smell the presence of boric preparations in food, and so has no means of protecting itself. From the standpoint of pharmacology and care for the health of the public, the application of boric preparations as preservatives of food should be forbidden.

Boracic acid as a preservative. Contributions to the critical examination of the attacks made on the prohibition of the application of boracic acid and its salts in the preparation of meat. (Publication by the Chancellor of the Empire, 18 February, 1902.) Prepared by Dr. E. Rost, counselor and member of the imperial health office. Berlin, 1903.

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In accordance with what precedes, the following is guaranteed:

Boracic acid is a preservative of slight disinfecting power, and is capable of preventing decomposition only when relatively large quantities are applied. It can cause a deception, since it even increases the weight of substances and, besides that, enables the meat treated with it to retain a larger quantity of water than is the case when it is cured with salt or smoke. Even when a large quantity of boracic acid has been added to food the consumer can not detect it by taste or smell. It has a directly injurious effect, since on the one hand flesh foods are less assimilated by the human body and on the other hand the nourishment of the human frame is so influenced by it that the weight of the body decreases. This effect is the more to be considered since the complete excretion of boracic acid from the human body takes a long time. What has been said of boracic acid is essentially true of borax as well.

When I went home yesterday one of the young men in my office who was here said: "Have you seen this criticism on your work which has just come out in a German magazine in January?" As I have been pretty busy in the last few weeks, I had not read the magazine. It is an adverse criticism of this report of mine. I am having it translated and typewritten, and I am going to put it in the evidence so that you can read it. Professor Liebreich I know very well. He is a personal friend of mine, a very eminent gentleman, and it is fair to say that he is employed by the borax syndicate; but I don't think that impugns his testimony at all, and I accept his criticism as if he had been employed by the German Government. One of those is the original report of the imperial board of health and the other the reply to a criticism made by this same Professor Liebreich. And to show how experts disagree, Professor Liebreich came to this country last year to testify in some cases in Pennsylvania on behalf of the borax and sulphite of soda, which Professor Vaughan condemns—he would not allow it used in any quantity.

Professor Liebreich appeared before the court in Philadelphia in the case where the hamburger-steak people who had been treating hamburger steak with sulphite of soda were made defendants; and he testified that in his opinion almost any quantity of sulphite of soda could be used with impunity in meat; and the court asked him, or counsel: "Professor Liebreich, do you use it in your meats at your home?" And he said: "No; I do not." "Would you use it if you wanted to?" was asked; and he replied, "I don't want to," and his whole testimony fell just on that. I was told—I don't know just how true it was—that he received \$4,000 for coming over here. One of our young men, who was not nearly so famous as Professor Liebreich, went over to Philadelphia and testified before the same court, and on his testimony the judge and jury found against the testimony of Professor Liebreich, whose criticisms of my report I will submit as soon as it is ready. That shows that Liebreich and Vaughan agree on borax. Vaughan and Wiley agree on sulphite, and I differ from both of them on the borax question, and they differ from each other on the sulphite.

That shows the conflict in opinions which you gentlemen are called upon to consider. It is something confusing, but of course you have to rely upon the character of the data after all. If you find that the data which I present are not reliable, have not been obtained in a proper way, my opinion is worth very little, and, as Professor Liebreich says, "I will accept the data as they are, and then I will draw an opinion which is entirely different," just what I told you yesterday could be done.

Mr. RYAN. Do you believe a Congressional committee, none of whom are chemists, are competent to judge between those opinions of eminent chemists who have formed those opinions after having analyzed the food?

Doctor WILEY. I think they are absolutely competent, just as a jury would be upon the same thing in the weighing of evidence.

You see the evidence as the weigher of evidence, and not as experts. You see it as a jury. I think this committee is absolutely competent to decide a question of that kind on the evidence submitted here.

Mr. BARTLETT. We have a good many bills before us, and there is where this question must come before the court and the jury.

Doctor WILEY. That is true so far as the Hepburn bill is concerned; somebody must render an opinion before you can bring an indictment, and then that opinion is subject to review of the court. That is the plain principle of the law, and surely you would never try to bind the court by any statements or anything else which any expert might set up.

Mr. BARTLETT. You will find one court and a jury deciding that a certain thing ought to be put in, and another that it ought not.

Doctor WILEY. It should be carried up to the highest court.

Mr. BARTLETT. In one locality a jury and a judge, with men on trial for not permitting a certain statement, might acquit one man and convict another.

Doctor WILEY. Exactly, and you will find when I submit the evidence from the English courts that that very thing happens all the time. You must leave it to the court. Every man can have his opinion, but that must not bind the court; an expert's opinion never can.

Mr. ESCH. I noticed that Rost came to the conclusion that the use of borax or boracic acid resulted in almost every case in a reduction of weight. Did you find that true in your experiments?

Dr. WILEY. Yes, sir; you will find that in this chart. We never found an exception.

Mr. MANN. Before you pass from the subject of borax, I would like to have your statement in reference to the use of borax under the provision of the bill, which in the Hepburn bill was removed by maceration.

Doctor WILEY. I heartily approve of that provision in regard to preservatives of food products intended for export. I have a little article that I am going to submit on that, Mr. Mann, in better form. There is a chart here (in Bulletin 84) showing by the position of the lines the loss of weight which these young men suffered. I don't think it is a very serious matter if a man loses a couple of pounds in weight.

Mr. TOWNSEND. You found some of them were gaining weight, as I understood you, and you had to reduce their food.

Doctor WILEY. Our foods were constant as long as they could eat. Until they became ill their food was never diminished throughout the preservative period.

Mr. TOWNSEND. Didn't you state that you had to watch them closely to see if they were gaining?

Doctor WILEY. That was before we began to establish the equilibrium; that was in the fore period.

Now, I have a transcript there which I think will prove very helpful to you gentlemen. You have heard a great deal about the finding of the English departmental committee. I want simply to quote the evidence of Prof. W. D. Halliburton, who is the most distinguished physiologist of the English-speaking people. Professor Vaughan would be very glad to tell you the same thing. He came over here last year and gave a series of lectures. His work is a textbook on chemical physiology and pathology. I want to read you just one or two things, which you might not read, that I have extracted from his testimony.

The English committee forbade the use of preservatives in certain food products, and recommended that a limited quantity, which they mentioned, should be permitted in other food products. While that

has never been made a law by act of Parliament, the courts are all guiding their decisions on the report of this committee. For instance, if they do not find any more than one-half of 1 per cent of borax, they do not convict a defendant. If they find less than 1 grain of salicylic acid to the pound, they do not convict a defendant. But they convict any defendant who puts preservatives in milk of any kind. The evidence of Prof. W. D. Halliburton is as follows—that part which I wish to read—and it can be verified if anybody wishes to.

The evidence of Prof. W. D. Halliburton, who is, I believe, acknowledged to be one of the greatest physiologists in the world, is of very great importance. It is found on page 263, and following, of the Departmental Evidence. In answer to question 7528, Professor Halliburton says:

I would say at the outset that the kind of evidence that I have to offer is not very largely clinical. The amount of medical practice which I have seen is limited. Very soon after my student days I took to physiological work, and I have remained at that more or less ever since, so that the actual observations that I have to make are in the nature of physiological experiments, and deal principally with the two chief substances that you have under investigation, as I understand—compounds of boron and formaldehyde. On general principles one would object to the continuous use of antiseptics. The substance which would destroy the life of micro-organisms could not be expected to be beneficial to the life of a higher organism; it would be largely a matter of dose. I mean to say the same dose that would kill a bacterium would not necessarily kill a man, but still it would be hostile to the protoplasmic actions that constitute the life even of a high animal like man.

Q. 7541 (p. 264). Then, as to boric acid, you have made extensive experiments?—A. With borax and borates I have made a fair number of experiments. In the introduction I allude to what is known as "borism." The eruption occurs on the skin of certain individuals as the result of the use of either boric acid or borax. There have been other cases recorded—although here again I can not speak personally—in which dyspeptic troubles have arisen. There have been a fair number of experiments performed upon animals.

Q. 7544. Boric acid is the commoner preservative, is it not?—A. I am not so sure. I think very largely a mixture is used that is called "glacialin"—a mixture of boric acid and borax. In animals the chief advantage, if one may put it so, of the poison is that it is not cumulative; it does not accumulate in the body, but it is rapidly eliminated by the urine.

Now, I put it to the committee this way: Here is an opinion of a man whose fame is far greater even than that of Doctor Vaughan. I believe that every person acquainted with medical and physiological literature in the United States will say that Professor Halliburton is the greatest living exponent of physiological chemistry in English-speaking countries. Could there be a more sweeping indictment brought against these preservatives than Professor Halliburton has stated? He says of borax and boric acid that the chief advantage of these poisonous bodies is that they are rapidly eliminated from the system, and he further states that the continual passage of these foreign bodies through the cells of the kidneys, to put it mildly, as he does, is not likely to do them any good. And yet Professor Vaughan advises this committee to permit the use of boric acid in foods in quantities not to exceed one-half of 1 per cent.

Professor Halliburton says further, in answer to question 7572: "May we take it, then, that in your view you are absolutely opposed to the use of formalin?"—"Yes."

Q. 7573. And with regard to the other preservatives, if they were labeled that would meet your objection; is that your position generally?—A. No; I feel that the ideal condition of things would be to prohibit them all.

Q. 7574. All preservatives?—A. All preservatives.

Q. 7575. Even salt?—A. No; I am not speaking of substances which are normal constituents of the body.

Q. 7576. Would you prohibit nitrate of potash, too?—A. One knows, even from smoking cigarettes, that nitrate of potash is not absolutely harmless.

Now, I put it to this committee in this way: Here is an opinion of a man whose fame is far greater than that of your humble servant or anyone else who can appear before you. He says of borax and boric acid that the chief advantage of these poisonous bodies is that they are rapidly eliminated from the system, and he further states that the continual passage of these foreign bodies through the cells of the kidneys, to put it mildly, as he does, is not likely to do them any good. And yet Professor Vaughan advises this committee to permit the use of boric acid in food in quantities not to exceed one-half of 1 per cent.

I will submit the rest of this, and I know that you will be interested in the conclusions that are based upon this data. It contains a record of the cases which have been decided in the English courts during 1905, giving all that were convicted and all that were released. I would also like to give the names of several German works that have been consulted: The Borsauere als Konservierungsmittel, Kaiserlichen Gesundheitsamte, also report of the departmental committee of England, appointed to inquire into the use of preservatives and coloring matters in the preservation and coloring of food.

The following are the data referred to:

REPORT OF THE ENGLISH COMMITTEE.

Mention has been made before this committee of the report of the committee for food preservatives appointed to inquire into the use of preservatives and coloring matters in the preservation and coloring of food, which was presented to both Houses of Parliament by command of His Majesty, and printed in 1901. No act of Parliament relating to foods has been made since this report was presented, and therefore the English food law remains exactly as it did before. The conclusions of the report, however, have been largely introduced into the English courts as a basis for comparison. It has been stated that the report of this committee recognized the use of boric acid in certain food products, and this is true, but attention must be called to the fact that when this report was made the investigations of the chemists of the Imperial board of health and of the Department of Agriculture had not been published; therefore the whole of this evidence, which is entirely against the desirability of the use of borax in food products, was not considered.

In the testimony before the English departmental committee, to which allusion has already been made on page 260, Sir Lauder Brunton made some interesting statements. Sir Lauder is a doctor of medicine and a fellow of the Royal Society of Physicians. He calls attention to a double danger to which the use of preservatives in food products causes, first, from the tendency to keep them too long when preserved, and, second, from the preservative itself. Following is his exact language:

Moreover it seems to me that by the unregulated use of preservatives we may possibly get a double danger, that from the drug itself which is used as a preservative, and that from the decomposing food which may in spite of the addition of a certain quantity of the preservative still undergo change and become dangerous to health.

He further says that he thinks it desirable to absolutely exclude preservatives from milk. Sir Lauder was asked the following question:

Q. 7431. Have you formed any opinion as to the relative harmlessness or value of the different chemical preservatives?—A. I have formed an opinion, but the data upon which I have formed the opinion are so imperfect that I should prefer not to express any opinion.

And further on, in Q. 7432:

We are able to form opinions regarding the action of certain drugs from their administration, either to animals or to men, but the length of time over which such experiments extend is too short to allow of a complete opinion being formed in regard to their action.

In 7433, in answer to the question, "Do I understand that you mean the cumulative action of such a drug would not be thoroughly ascertained?" he replied:

The cumulative action, and possibly something more than the cumulative action, that is to say, the continued action over a length of time, even though there should be no accumulation. To give an example of what I mean—if a man takes a little excess of sulphate of magnesia every morning, so as to cause rather too free purgation, there is no accumulation in the body of the sulphate of magnesia, but yet at the end of a year the continued excessive use of the drug has given rise to a condition of weakness which would not have been present but for this excessive use, and yet there has been no accumulation. I thus distinguish between the cumulative effect and a continued effect.

Q. 7434. To take the example of one common preservative—boracic acid; the amount of boracic acid which can be voided by the human subject in the course of 24 hours is limited, is it not?—A. It is limited, but I do not know the limit.

Q. 7435. That is one of the elements of uncertainty?—A. Yes; that is an element of uncertainty.

Q. 7436. Although you might know the exact quantity being taken by a human being, it would be impossible to know whether there was any accumulation going on?—A. It would be difficult to know whether any accumulation was going on, and with the present data before us it would be impossible to say whether any continuous, as distinguished from a cumulative, effect was being produced.

Q. 7460. Let us take, for instance, a physician who goes into a hospital and prescribes to a patient 10 or 15 grains of boracic acid three times a day; is it a matter of importance to the medical man and to the patient whether that patient may already be taking three times that amount?—A. Yes; I think it is.

Q. 7461. A serious matter?—A. I think so.

Q. 7462. And so with other drugs, such as salicylic acid and benzoic acid and other preservatives?—A. Yes.

Q. 7463. There is one question I should like to get the advantage of your opinion upon now, and that is the contraindications for the administration of certain drugs, more particularly borax and salicylic acid. If I may read you an extract from your works, perhaps you would kindly give us your opinion upon it—this is in reference to borax: "It has been supposed to have a special action upon the uterus, and has been employed in amenorrhea, dysmenorrhea, and puerperal fever and convulsions. On account of its asserted power to increase the uterine contraction it ought either to be avoided or employed with great care during pregnancy." If that statement is the fact, is there not a danger that a very large number of child-bearing women may be at this time taking something which, according to this statement, is contraindicated?—A. There is a certain danger of that.

Q. 7464. Then, with regard to the use of salicylic acid, may I just read you this: "Sometimes, however, the salicyl compounds so irritate the kidneys as to cause albuminuria and even hæmaturia, and they must be used with great caution when given for this or other purposes if renal or hepatic disease be present, and in aged persons, inasmuch as under their influence there is an increase of the amount of uric acid waste and they are apparently not diuretic. The salicylates are believed by some authorities to be harmful in gout." Assuming that, again, to be true, do you see in that an objection to the indiscriminate use of salicylic acid?—A. To the indiscriminate use, certainly; and that, I think, affords a very strong proof of the correctness of my suggestion that preservatives should not be allowed to be used without the person who is using them knowing that he was taking them, because in the great

majority of cases salicylic acid will not produce those symptoms, but there are certain individuals who might be thus affected. If salicylic acid is allowed to be used without its use being notified to the consumer he may be suffering from those symptoms while he himself and his medical man are totally in the dark in regard to the cause of the symptoms, whereas if he is notified that the milk or other food which he is taking contains a certain proportion of salicylic acid the attention of the medical man would probably be at once directed to the possibility of salicylic acid having been the cause of the symptoms.

The above extract from the testimony before the departmental committee, it seems to me, covers the whole ground in a nutshell. The reason that Sir Lauder Brunton is in favor of labeling foods which contain preservatives is to enable the medical man in cases of disease to know what produces the disease. Certainly, a more sweeping statement respecting the harmful quality of preservatives could not be found in literature.

In the discussion of the evidence by the committee the reasons which led them to the adoption of certain conclusions is clearly brought out. For instance, on page xxvi, paragraph 110, of the report are found the following statements:

Although the greater number of the witnesses disclaimed any knowledge that boracic acid or borax is actually injected into the carcasses, we are convinced from our own observations, as well as from the testimony of certain witnesses, that these preservatives are used in the curing of hog products, having found ham to contain amounts varying from 4 to 24 grains per pound and bacon from $2\frac{1}{2}$ to $8\frac{1}{2}$ grains per pound. The use of boron preservatives, which began about twenty years ago, is now very general in the import trade in bacon and ham. No doubt they are exceedingly convenient, but that they are not indispensable is proved by the success of a large and well-known firm of exporters of Wiltshire bacon, which uses no antiseptics but salt and saltpeter.

This is a very important conclusion. It is shown that, even in the opinion of the committee at that time, before the additional evidence referred to above was obtained, the use of boron in meats was not necessary.

Doctor Vaughan, you will remember, stated in his testimony that he was opposed to the use of any quantity of sulphites. The English committee make the following statement respecting these bodies, page xxvi, paragraph 111:

Concerning the physiological effects of the sulphites, a preservative often used by butchers, poultry dealers, and brewers, there has been no evidence laid before this committee. It appears, however, that when sulphurous acid or its salts are added to organic compounds, such as beer or butchers' meat, some is at once oxidized to sulphate, which may be regarded at any rate in the amount present as indifferent; some attaches itself chemically to certain constituents of the food in question, and the compound formed is also innocuous; a third portion remains as sulphurous acid, and it is this portion alone which is of permanent efficacy as an antiseptic. Concerning the effect of this moiety upon the consumer pharmacologists do not seem agreed, and further investigation is required before the sulphites can be regarded as either harmful or harmless.

It appears, therefore, that the English committee up to that time had not received the conclusive evidence condemning sulphites, upon which Doctor Vaughan's opinion seems to be based.

The English committee, however, emphatically approve the doctrine that borax is an injurious substance in itself, for while they admit it for consumption in foods used mostly by adults, on the ground that it will not materially affect the health of adults, they utterly condemn it for milk. If, however, borax is not an injurious substance, there would be no justice whatever in condemning it in milk; thus the English committee are not consistent in their rulings in this case, and while

we must admit the loftiness of their motives, we can not fail to see the inconsistency of their conclusions. They say in regard to milk, page xxvi, paragraph 113:

But the circumstances and considerations affecting the milk traffic are very different. Milk, a very perishable substance, peculiarly liable to bacterial contamination, forms a very large proportion of the daily food of the public. The nutrition of infants and young children depends greatly on the purity and abundance of the milk supply, and seeing how frequently milk is prescribed for invalids and convalescents, it is of the utmost importance that it should not be the vehicle of any unsuspected agent. While it is possible that milk containing boracic acid in sufficient quantity to act as a preservative (say 30 grains to the gallon) might be consumed to the amount of 4 or 5 pints a day without harmful results by most healthy children or adults there is evidence pointing to an injurious effect of boracised milk upon the health of very young children.

The above is an absolute condemnation of boron preservatives because it is said that they do produce injurious effects in infants, invalids, and convalescents. The case, therefore, is made out even on the evidence of the English committee, who did not have before them the more serious charges against borax which have been developed later in the investigations of the Imperial board of health of Germany and of the Secretary of Agriculture. It is not, therefore, surprising that Parliament has failed to carry into effect the recommendations of the committee in the form of law when the conclusions themselves are of such an illogical character in the respect which I have mentioned.

The English committee, with one exception, condemn the use of sulphate of copper in food products, although the evidence against it was not nearly so strong as that which they themselves adduced against the use of borax. They say, page xxviii, paragraph 127:

The employment of copper sulphate to color peas and other vegetables has been carefully considered by us. It is highly undesirable that what is admittedly a poisonous substance should be used, even to the smallest extent, in connection with such food as may be consumed in considerable quantity. The public have got into their heads that vegetables ought to be green, and green they insist upon having them. Direct proof that vegetables containing copper are injurious to the consumer is from the very nature of the case difficult to obtain, and we must admit that we have not succeeded in obtaining it. There is evidence pointing to the conclusion that the copper, when added to the vegetables, forms a compound which is not easily soluble in the human economy. There is, however, evidence of a contrary character, and it is not clear to us that the whole of the copper added becomes or remains insoluble under all conditions. Be this as it may, recent events have so incontestably demonstrated the serious and widespread mischief which may result from the consumption of food and drink, other than sweetmeats, containing even minimal quantities of poisonous metallic substances, that we are strongly of opinion that such poisonous substances should be rigorously excluded.

A further evidence of the illogical conclusions of the English committee is found in the fact that while they are unanimous in the opinion that boric acid should not be added to milk, it was allowed by them to be used in cream on the ground that it would be difficult to maintain or increase the present supply of cream without the use of some preserving agent. (Page xxviii, paragraph 121.) They say further the presence of a preservative is less objectionable in cream than in milk because cream is usually consumed in much smaller quantities than milk. The full paragraph is as follows:

In regard to cream the question is somewhat different. We are of opinion that, under present conditions, it would be difficult to maintain or increase the present supply of cream without the use of some preserving agent. The presence of a preservative is less objectionable in cream than in milk, because cream is usually consumed in much smaller quantities than milk; but inasmuch as cream is now often

prescribed for invalids and children instead of cod-liver oil, we consider that the obligation should be laid on the vender of cream of notifying the presence, nature, and quantity of the preservative.

It was recommended that salicylic acid be prohibited in all foods or drinks in greater quantities than 1 grain per pint in liquid food and 1 grain per pound in solid food, and its presence in all cases to be declared. (Page xxx, paragraph 136 (A).)

The results of our own investigations of the effect of salicylic acid on health convinced us that it is very much less injurious in proportionate quantities than borax in any form, and therefore the English provisions in regard to borax are not in accordance with the present information on the subject, but to be so should require that at least no more borax than 1 grain per pint or 1 grain per pound should be used. I submit herewith also the result of the trials of the food cases in England during the year 1905, in which boric acid and salicylic acid are the subjects of contention. Your committee will doubtless be gratified to see that in the great majority of cases convictions were obtained in these instances, and yet it would be, in my opinion, impossible to prove that a quantity of borax in butter of one-half per cent is sensibly less injurious than six-tenths or seven-tenths per cent. Therefore if the English law excludes all quantities above one-half of 1 per cent, it is illogical not to apply the same principle to quantities considerably below one-half of 1 per cent. It seem to me that no justification of the plea which has been made here by Doctor Vaughan and others that one-half per cent of borax be permitted in food products is found in the report of the English committee, and especially when we consider that it was made with incomplete evidence, which evidence, if it had been laid before the committee, would doubtless have led them to an entirely different conclusion.

It will be of interest in this connection, though I will omit the reading of the document, to submit a statement of the convictions for violation of the English food law, by reason of the addition of preservatives of different kinds, during the year 1905. These data show the great activity of the English authorities and the good work they are doing toward ridding the foods of England of these injurious substances.

Summary of legal cases under the sale of food and drug acts, etc., taken from the British Food Journal for the year 1905.

BEVERAGES.

Place.	Date.	Article.	Preservative or adulterant.	Grains per pint.	Per cent.	Fine.
Ramelton petty sessions.	June 10, 1905	Cinnamon cordial.	Salicylic acid	7.2	0.082	5 s. 2 d. and costs.
Whiteaby	Apr. 14, 1905	Ginger wine...	Salicylic acid	4.32	0.05	Dismissed.
Cape Town police court.	Mar. 9, 1905	Lime-julcecordial.	Salicylic acid	3.64	0.041	Dismissed.
Cape Town police court.	Mar. 9, 1905	Lemon squash.	Salicylic acid	3.08	0.035	Adjudged.
Brentford	Mar. 23, 1905	Ginger wine...	Salicylic acid	5	0.058	Adjudged.
Moville	Apr. 5, 1905	Ginger wine...	Salicylic acid ....	.....	.....	Dismissed.
Moville	Apr. 5, 1905	Ginger wine...	Salicylic acid ....	.....	.....	Dismissed.
Portrush	Apr. —, 1905	Ginger wine...	Salicylic acid	2.7	0.03	Dismissed.
Mansfield	Mar. 16, 1905	Vinegar	Pyroligneous acid .....	.....	.....	£1 1 s.
Southward	Mar. 15, 1905	Vinegar	Pyroligneous acid .....	.....	0.50	Adjudged.
Brentford	Feb. 23, 1905	Orange wine...	Salicylic acid	3	0.034	Dismissed.
Dunfanaghy	Feb. 4, 1905	Ginger wine...	Salicylic acid	7.2	0.083	5 s. and costs.
Sidney	Feb. 25, 1905	Wine	Sodium chloride.	6.375	0.073	£2 and costs.
Southwark police court.	Jan. 11, 1905	Ginger wine...	Salicylic acid	13	0.15	Dismissed.
Melksham petty sessions.	Jan. 5, 1905	Orange wine...	Salicylic acid	5	0.057	£5 and costs.

Summary of legal cases under the sale of food and drug acts, etc.—Continued.

BUTTER.

Place.	Date.	Preservative.	Grains per pound.	Per cent.	Fine.
Woking police court	June 24, 1905	Boric acid	70	1	Dismissed. ^a
Chelmsford	June 30, 1905	Boracic acid .....		.9	Adjourned.
Clacton	June 26, 1905	do .....		.9	Do.
Southend	June 21, 1905	do			Do.
Widnes	June 29, 1905	do	53.9	.77	Dismissed. ^b
Manchester	May 23, 1905	do			Adjourned.
Salisbury	May 9, 1905	Boric acid	70	1	6d. and costs.
London	Feb. 9, 1905	Boracic acid	94	1.8	Adjourned.

^a There was objection to the form of the certificate of the public analyst, Sir Thomas Stevenson. The certificate did not state clearly what the offense was, and did not state that boric acid had been used in more than the usual quantities nor that it was injurious to health. Objection was sustained by the bench.

^b The prosecution failed to make out a case, so the summons was dismissed.

MARGARINE.

Place.	Date.	Preservative.	Grains per pound.	Per cent.	Fine.
Liverpool	June 7, 1905	Boracic acid		0.7	£1 and costs.

MEAT.

Place.	Date.	Article.	Preservative.	Grains per pound.	Per cent.	Fine.
Keighley	Sept. 12, 1905	Sausages	Boric acid			10 s.
Trowbridge	May 10, 1905	do	Boracic acid	105	1.5	£1 and costs.
Exeter	Jan. 13, 1905	do	Boric acid	60	0.86	5 s. and costs.

MISCELLANEOUS.

Place.	Date.	Article.	Adulterant.	Grains per pound.	Per cent.	Fine.
Lambeth	Mar. 30, 1905	Cream of tar-tar.	Lead	1.75	0.025	5 s. and costs.
Do	do	do	do			Do.
Loddon	Mar. 1, 1905	Baking powder.	Alum			£1.

MILK.

Place.	Date.	Preservative.	Grains per pint.	Per cent.	Fine.
Perth	Oct. 12, 1905	Boric acid			£10 and costs.
Do	do	do			£5 and costs.
Southwestern	Oct. 25, 1905	do			£2 and costs.
North Walsham	Sept. 9, 1905	do	3.15	0.036	
Do	do	do	4	.046	10s. and costs.
Brentford	Oct. 12, 1905	do	20	.23	£25 and costs.
Enfield	Sept. 25, 1905	do .....		.088	£1 and costs.
Exeter	Sept. 29, 1905	do	6.5	.074	Costs.
Lambeth	Oct. 12, 1905	do	5	.057	£5 and costs.
Liverpool	Oct. 6, 1905	do	2	.023	Do.
Southall	Sept. 18, 1905	do	10.6	.12	£2.
Chiswick	Sept. 13, 1905	Borax	11.5	.13	£5 and costs.
Highgate	Aug. 24, 1905	Boric acid .....		.01	£2 and costs.
Liverpool	Aug. 30, 1905	do	6	.069	Do.

Summary of legal cases under the sale of food and drug acts, etc.—Continued.

MILK—Continued.

Place.	Date.	Preservative.	Grains per pint.	Per cent.	Fine.
Liverpool.....	Aug. 30, 1905	Boric acid	2.8	.041	£2 and costs.
Rochford.....	Aug. 31, 1905	do	7	.08	10 s. and costs.
Do.....	do	do	5	.057	£1 and costs.
Halifax.....	do	do	2.75	.081	2 s. 6 d. and costs.
Newmarket.....	July 25, 1905	do	4.5	.051	£5.
Rotherham.....	July 17, 1905	do	3	.035	Dismissed. ^a
Brentford.....	July 6, 1905	Borax	9.75	.11	£1 and costs.
Dewsbury.....	June 16, 1905	Boric acid			10 s. and costs.
Teddington sessions.....	June 5, 1905	do .....		.067	£3 and costs.
West Riding.....	June 16, 1905	do	3	.035	10 s. and costs.
North London.....	Mar. 4, 1905	do	9.25	.106	Dismissed.
Llandaff.....	Feb. 13, 1905	do	1.5	.017	£2 and costs.
Thames Place Court.....	Feb. 25, 1905	Formaldehyde .....		.015	Withdrawn.
Woolwich police court.....	Jan. 26, 1905	do .....		.002	£1 and costs.

^aCourt ruled there was no legal evidence against the defendants.

TINNED FOOD.

Place.	Date.	Article.	Preservative or coloring matter.	Grains per pound.	Per cent.	Fine.
Londonderry.....	Apr. 13, 1905	Peas.....	Sulphate of copper.	2.5	0.036	£3 and costs.
Londonderry.....	Apr. 13, 1905	Peas.....	Sulphate of copper.	1.25	.018	£3 and costs.
Londonderry.....	Apr. 13, 1905	Peas.....	Sulphate of copper.	3	.043	£3 and costs.
Londonderry.....	Apr. 3, 1905	Peas.....	Sulphate of copper.	2.75	.088	£3 and costs.
Londonderry.....	.....	Peas.....	Sulphate of copper.	2.25	.032	£3.
Londonderry.....	Mar. 9, 1905	Peas.....	Sulphate of copper.	2.5	.036	£3 and costs.
Bexhill police court.....	Jan. 21, 1905	Peas.....	Sulphate of copper.	1.87	.027	
Liverpool.....	Feb. 8, 1905	Peas.....	Sulphate of copper.	2.96	.042	£5 and costs.
Liverpool.....	Feb. 8, 1905	Peas.....	Sulphate of copper.	3.16	.045	£6 and costs.
Marlborough street.....	Nov. 9, 1905	Spinach.....	Sulphate of copper.	4.57	.065	£10 and costs.
Blackpool.....	Oct. 16, 1905	Potted shrimps.	Boric acid			10 s. and costs.
Blackpool.....	Sept. 11, 1905	Tinned goods.....	Boric acid			£1 and costs.
Westminster.....	Dec. 1, 1905	Spinach.....	Sulphate of copper.	5	.071	£2.
Westminster.....	Dec. 1, 1905	Spinach.....	Sulphate of copper.	6	.086	£3.
Westminster.....	Dec. 7, 1905	Spinach.....	Sulphate of copper.	7.5	.094	£3.
Marlborough street.....	June 19, 1905	Peas.....	Sulphate of copper.	3.04	.043	£5 and costs.
Londonderry.....	June 14, 1905	Peas.....	Sulphate of copper.			Adjourned.

Methods of analysis.

DETERMINATION OF BORAX.

In the absence of fat a sample of the substance may be suspended in water and strong hydrochloric acid to about one-tenth the volume of the water added and a strip of turmeric paper suspended with its lower end dipped into the water. The boric acid is carried up by capillary attraction, and after a short time is made evident by the appearance of a red zone at the upper limit of the wet portion of the paper. This is turned dark green by ammonia.

In the absence of fat or other organic matter that interferes with the reaction the sample should first be made alkaline and burned and the ash treated as directed above. This test is very sensitive, so much so that in the examination of foods the amount of sample taken must be limited, and care must be taken not to be misled by the boric acid naturally present in the substance.

For quantitative determination of boric acid the sample is made alkaline with lime, burned to an ash, the ash dissolved in acid, made alkaline and filtered, and the borax determined in the filtrate by means of Thompson's method, which consists in the neutralization of the filtrate and the determination of boric acid by titration after adding mannite.

SALICYLIC ACID.

The substance, or its aqueous extract, is extracted with ether, the ether allowed to evaporate spontaneously, the dry residue extracted with gasoline, and the salicylic acid detected in the gasoline extract or in the residue left after its evaporation by means of a solution of ferric chloride, or ferric alum, which gives a violet color. Interfering substances must often be removed by precipitation with calcium or iron, or in some cases the salicylic acid must first be removed by distillation.

BENZOIC ACID.

The benzoic acid is separated as described under salicylic acid. It may then be detected by Mohler's reaction, which depends on first oxidizing the organic material present with strong sulphuric acid, diluting, making the product alkaline with ammonia, and reducing the solution in a test tube with a drop of ammonium sulphid. A pink color indicates the presence of benzoic acid.

This test should be confirmed by employing a larger quantity of the sample, separating benzoic acid by subliming, and noting the character of the crystals.

FORMALDEHYDE.

In milk formaldehyde may be detected directly by adding to the milk an equal volume of strong hydrochloric acid, containing a trace of ferric chlorid. From other foods formaldehyde is first separated by distillation, the first portion of the distillate mixed with an equal volume of milk and the mixture treated as described above. The presence of formaldehyde is indicated by the formation of a distinct purple color.

SULPHUROUS ACID.

Sulphurous acid is detected by making the sample, or in the case of solid and pasty foods, its aqueous extract, alkaline with phosphoric acid, and distilling in a current of carbon dioxide. The sulphurous acid may then be detected by oxidizing with bromin and precipitating the resulting sulphuric acid by means of barium chlorid. With some liquid foods this reaction may be obtained directly without distillation. With some foods a dilute solution of iodine is employed, and the amount of sulphurous acid present is calculated from the volume of iodine solution decolorized. In some cases the hydrochloric acid and granulated

zinc are introduced into the receptacle with the food and a strip of moistened lead paper suspended over the receptacle. If sulphurous acid be present it is converted into hydrogen sulphid and blackens the paper.

Reactions by all of the methods except the first are to be confirmed by the first method, except in foods which have been so thoroughly studied as to make it certain that the methods are applicable without such confirmation.

The CHAIRMAN. We will have to suspend at this point.

Adjourned at 12 o'clock noon.

AFTER RECESS.

At the expiration of the recess the committee resumed its session, Hon. William P. Hepburn in the chair.

STATEMENT OF DR. HARVEY W. WILEY—Continued.

The CHAIRMAN. Proceed, Doctor, if you please.

Doctor WILEY. Mr. Chairman, I would like to present to the committee now the full criticism which I spoke about this morning, some of which I have had translated and typewritten.

The CHAIRMAN. Very well. Just give it to the stenographer, unless you wish to read it.

Doctor WILEY. It occurs in the *Chemiker Zeitung* for 1906, this last month, volume 30, page 14. I would like to read a few extracts from it, then I will submit the rest for your consideration.

Doctor Wiley has omitted a large number of results out of the 30 cases investigated, without giving sufficient reasons for doing so.

That is a misunderstanding of the English text, Mr. Chairman. Whenever a young man became ill, so that he could not complete an experiment, we could not compare him with those who did complete the experiment, because we only fed him a part of the time; and we distinctly state here in every case that he is excluded, but he is compared up to the time when he quits; and that is the cause of this statement here. It is a misunderstanding of the statements in the book.

Again he says:

A number of days are tabulated which originally were intended for the boric acid period, but during which, for some reason or other, the administration of boric acid ceased.

In every case it is stated why the administration ceased—on account of illness; and in that case we sometimes let one man run over a little longer period, so as to get his full observation; but every one of those cases is set out with the greatest distinctness.

Now I will read just the closing part of this, simply because I want to read from my own book a refutation of the statement that is made there. He says that I attributed a continuing effect to the boric acid, claiming it to be absolutely shown. I just want to read one individual case, in one instance. [Reading:]

A review of the above data seems to indicate—

I do not say "absolutely indicates"—

Seems to indicate a rather close connection between the continued administration of the preservative, even in small quantities, and the occurrence, recrudescence, and persistence of the headache, perhaps more properly described as an uncomfortable feeling in the head.

In all these cases I have guarded my statements with great care, which does not seem to be recognized here, except at the end, and I will just read the closing part to show that—

Doctor Wiley admits that conclusive evidence is lacking to prove that boric acid is harmful.

That is what I have insisted upon before this committee all the time, that it proves it to me; but the same person may take these data and get an entirely different conclusion. What I claim now, Mr. Chairman, and what I want you to give me credit for, is trying honestly to put down every observation I made in this book. I may have erred; I possibly have, in my conclusion from this data.

And those that refer to Doctor Wiley's report as verifying this statement—

Namely, that borax is harmful—

do the author an injustice—

He recognizes that—

do the author an injustice, for they disregard this statement of his.

Now, he says:

And, at the end of the year, quite a long time after the experiment, the subjects are in better physical condition than before the experiments; nevertheless, the boric acid had an evil effect, and only the regularity of habits of life during the experiment prevented the evil effects, and prevented them long after the period of the experiment. This is Doctor Wiley's conclusion.

"He who carefully reads Liebrich's comments" (that is the man who has been criticising me—Liebrich), "and critically examines Wiley's report, will come to a like conclusion as Liebrich."

That is just what I have said. That may be possibly true—that this report does not give the slightest proof of the declared evil effects of preparations containing boric acid or borax as they are used in preservatives of food materials.

That is a perfectly legitimate criticism and is simply a matter of interpretation.

I submit a statement of the amounts of benzoic acid calculated to percentages, which we used in some of our foods, compared with the statement of Doctor Vaughan that he is certain one grain would not produce any bad effects; and I also submit, without reading it, Doctor Vaughan's recommendation that such an advisory board as that which is provided for the Surgeon-General of the Public Health and Marine-Hospital Service would be very helpful to the Secretary when he comes to discuss the subject of wholesomeness of substances added to foods. I highly approve of that. I have labored before this committee heretofore on other bills to have just such a board constituted.

(The above papers, and those subsequently referred to, will be found printed at the end of this hearing.)

MR. TOWNSEND. It was in the other bill, too, was it not?

DOCTOR WILEY. It was in the other bills. It was objected to by a great many people on the ground that it created new offices, and for that reason it was taken out finally; and such a board as he suggests is the one that I have always approved of. For instance, under the present law, which is now in force, the Secretary would consult all the experts of the Marine-Hospital Service, and of the Army and of the Navy, and such other experts as he saw fit.

I will state further—

Mr. BARTLETT. You mean he could do it?

Doctor WILEY. He would do it; I know he would.

Mr. BARTLETT. But I mean he is not compelled to do it; he would do it?

Doctor WILEY. No; he is authorized to do it.

Mr. BARTLETT. You mean to say you believe he would?

Doctor WILEY. I certainly do.

Mr. BARTLETT. That is, he could; he has the power to do it, and if he has the inclination he can do it? That is what you mean?

Doctor WILEY. Yes; and I do not think it is usual to make mandatory regulations against a Cabinet officer. It is always understood that he will carry out the purpose of Congress in all his doings, I think.

Now, for instance, they have in the Marine-Hospital Service two excellent men of fine reputation and large experience. One is a skilled pharmacologist. A pharmacologist is a man who studies the effect of a drug upon the organism. That is what we have been studying. Then they have a chemist that is remarkably well skilled in enzymic actions. Those are the actions that take place in digestion. Those two men would be most excellent people to add to the board.

Mr. BARTLETT. Who are they, Doctor?

Doctor WILEY. Dr. Reid Hunt and Prof. Joseph H. Castle, both of them graduates of Johns Hopkins University. Those are two men that I should certainly advise the Secretary to consult and advise you to put on the board, if you are willing to make one, as being two of the best selections you could make.

Then, the Surgeon-General of the Army would be glad to detail a physician expert in nutrition, because he has a lot of them. They have special schools. They send them down to our laboratory. They always keep about two officers there studying all the time the same topics we are studying, and some of them have had large experience. Then you ought to have another one from the Navy of the same kind. That would make four that would be experts of the highest character, and, if you will permit me, later on I may submit an amendment to the bill in which they will be officially recognized, and others.

What I do not want you to do is to act so that the Secretary can not consult as many as he likes. Do not limit him.

Mr. TOWNSEND. It was not the proposition of Doctor Vaughan, but it was the proposition that he should have five men—four besides yourself.

Doctor WILEY. Yes.

Mr. TOWNSEND. Who should constitute a board, naming those different classes of sciences?

Doctor WILEY. That is just exactly what is provided for in that board for the public health that I mention. I have the act right there.

Mr. TOWNSEND. They do not even restrict you as to where you shall get these men; it would only be that class of men.

Doctor WILEY. But he would be prevented from consulting other people, would he not? That is not the object?

Mr. TOWNSEND. No, sir.

Doctor WILEY. Then I certainly would approve of it, especially if he could get such men as the two men that I have mentioned, who are totally unbiased, have no interest in the matter, and are very competent.

I may state to you that perhaps you do not know that the Secretary has never yet asked for any advice in regard to the whole subject of

foods in respect of wholesomeness of this food standards committee. All we have done heretofore is to study the chemical composition of foods, to see what is a standard of purity from composition. Therefore he has not had occasion to call in these experts that I have mentioned, who will advise him in regard to the matter of wholesomeness, as he will do either under existing law or under such an amendment as you may make to this law. I certainly heartily approve of such an amendment.

Mr. TOWNSEND. I want to ask you now, for fear we will not get to it, what is your definition of a simple food, a mixed, and a compound food?

Doctor WILEY. I should call a simple food one in a natural state, like wheat or Indian corn. A manufactured food is one made from a natural state in which certain things are taken away, but to which nothing is added, like wheat flour. You take something away from the wheat when you make wheat flour, but you do not add anything. A mixed food is one which is mixed by man and not by nature—two foods mixed together; and “mixed” and “compound,” in my opinion, would have the same definition. A compound food is one made up of different kinds of foods.

Mr. TOWNSEND. I have been consulting the dictionary a little bit about that to fix the matter in my own mind, and the information that I get from it is this: That a simple food is a single food, one that exists in nature, as you suggest; a mixed food is one where there are two or more things put together, but not chemically united; but a compound would be one where they were chemically combined.

Doctor WILEY. That is true, if you use the word “compound” in the sense of a chemical compound.

Mr. TOWNSEND. Well, if “compound” and “mixed” are the same things, why do you use them both?

Doctor WILEY. I can readily understand how the word “compound” might attach to a chemical union between two foods mixed together; but if it does not attach to that, and if that is not the meaning attached, a compounded food would be simply something put together; and I do not think we use the word “compound” in this sense in the chemical sense.

Mr. TOWNSEND. What I was curious to know was why you used both terms if they meant the same thing.

Doctor WILEY. I think those terms are largely synonymous when used in that sense.

The CHAIRMAN. Doctor, I would like to ask you, in connection with the board that you have been speaking of, whether there has been to any considerable extent a challenge of the correctness of the food standards that the secretary has from time to time promulgated?

Doctor WILEY. Never from anyone, Mr. Chairman, so far as I know, except enemies of this legislation—men who want to prevent it.

The CHAIRMAN. What I wanted to get at was whether many of the standards had been challenged, or whether there have been a good many challenges of one standard?

Doctor WILEY. There have been a good many suggestions—criticisms of individual standards as not being correct—for instance, our standard for butter, which we fixed after examining hundreds of analyses and after having made many of our own. We said that butter should have 82½ per cent of butter fat, and that makes it impossible to

add more than 15 or 16 per cent of water to a butter and have it standard. The food commissioner of Iowa writes to the secretary that he thinks it ought to be made 80 per cent, so that the content of water might be put up to 18 per cent. But all the data which we have consulted show that if you make the standard 82½ per cent it will take in 85 per cent of all the butters on the market, and a standard never goes to the minimum of inferiority.

The CHAIRMAN. What I want to get at is whether any of these standards have been challenged?

Doctor WILEY. Very few.

The CHAIRMAN. Very few?

Doctor WILEY. Very few; and while you are on that subject, Mr. Chairman—

The CHAIRMAN. I wanted to ask you still another question, and that is as to the feasibility of having a board of review or appeal in case of those challenges, in case of those standards that are disputed—whether or not that is practicable, in your judgment?

Doctor WILEY. Why, it is entirely practicable; the question is, is it advisable?

The CHAIRMAN. What objection is there to it?

Doctor WILEY. Because if you should admit that principle you would never come to any decision as long as anybody wanted to protest.

The CHAIRMAN. Well, yes; you would get the decision from this board of appeal.

Doctor WILEY. You would have to have, then, another board composed of just as many experts, and who would have to do just as much work, or more, than the board who had just acted, and everything would have to be gone over.

The CHAIRMAN. With regard to that one standard?

Doctor WILEY. With regard to that one standard. There is not one that somebody would not take objection to, if he had a chance. Some manufacturer would oppose it; and so they would never come to any decision.

The CHAIRMAN. Yes; we allow every legal proposition that is decided to be challenged, but have a final court, whose action is a finality.

Doctor WILEY. Oh, I admit at once that these should go to the courts.

The CHAIRMAN. Oh, no; I am not speaking of that. I am simply illustrating with this board of appeal.

Doctor WILEY. I can not see, for the life of me, how any board could do the work better than the board that has done it has done it.

Mr. TOWNSEND. Well, that is the proposition. Suppose, now, Doctor, that you make a ruling for the Secretary of Agriculture, and the Secretary of Agriculture promulgates a standard of a food—what its elements should be—or, we will use it more explicitly, in reference to a preservative?

Doctor WILEY. Yes.

Mr. TOWNSEND. Supposing that is something which affects manufacturers generally, or would affect them, or would affect any manufacturer, we will say, and he objects to that. Supposing, then, that matter was referred to you and these other four gentlemen who are provided for and they should determine that question?

• Doctor WILEY. I think I can illustrate that, and I will take up this a little out of the order, because you have asked about it. I have it all here and will submit it for publication—the full record. A standard is proposed for any food product; it is published; it is distributed to ever manufacturer who is interested in the making of that material; it is sent to all the experts whose addresses we can get, all over this country. We send them out by the hundreds, and we ask for criticisms and suggestions from the manufacturers and their experts, from the State dairy commissioners and their experts, and from everybody we can reach. We make efforts to reach every possible person in this country who is interested. Then we fix a meeting and we invite all these people to come before us, to come in person or by proxy, and present their views, and they go over this whole matter. We discuss it together. They bring their experts, and the committee asks them questions as you are asking me questions. We simply act as a jury. We take no action at all except to examine these witnesses and consider their data. Then, when we have heard all these things, we sit down and go over all the data. We compare it with data which we have collected, and we then reach a decision as to what is proper, but we do not then advise the Secretary to establish that standard. We publish it all again and send it out a second time to see if there is still opposition, and it is not until that has been done and we have reconsidered all the opposition that has been made to that point that we advise him then that that is a proper standard.

Mr. TOWNSEND. Who is “we?” Whom do you include in that expression?

Doctor WILEY. The food standards committee of the Association of Official Agricultural Chemists, authorized by law to be the advisors of the Secretary in this matter, with such experts as he may call.

Mr. BARTLETT. You say the United States food standards committee?

Doctor WILEY. That is not the title of it. It is the food standards committee of the Association of Official Agricultural Chemists.

Mr. BARTLETT. By whom are they appointed?

Doctor WILEY. The first committee was appointed by Mr. B. B. Ross, the State chemist of Alabama, in 1898. They are appointed by the president of that association, and this same committee have studied this subject continuously since then.

Mr. ESCH. How many members are there, Doctor?

Doctor WILEY. There are five members. I will tell you presently who they are.

The CHAIRMAN. Does the Secretary of Agriculture have anything to do with their appointment?

Doctor WILEY. The Secretary of Agriculture has commissioned each one of them as special agent so that he may be able to pay his expenses while he is serving, and pay him a compensation.

The CHAIRMAN. Then he has nothing to do with their original appointment?

Doctor WILEY. No; the Secretary of Agriculture can not add to that committee nor take from it, except that he might advise the president of the society to do so, but he can consult any other experts that he likes, and does so consult them and directs us to consult them. They are consulted, rather, through this committee. As you understand, the Secretary of Agriculture can not have hearings of that kind, because

he is not an expert in that matter, but we go to him and lay the whole matter before him, and we tell him: "Now, this is done for this reason." Everything is explained to him in full, and if he approves what we do, he proclaims these standards in harmony with law.

You will be interested in this matter, gentlemen, because it has been mentioned here a good deal, and I have taken the trouble to get up this thing so that it will be published and you can have access to the actual documents—not what anybody says, but what is actually true.

First, the history of this food standards committee is given here in full. I beg your pardon; Mr. A. L. Winton, of New Haven, Conn., a very distinguished chemist, well known throughout this country and connected with Yale University as a professor, appointed this committee. It was not Mr. Ross, as I thought.

Mr. RYAN. You say Mr. Winton is a member of this standards committee of the association of State dairy and food departments?

Dr. WILEY. No, sir; he was the president of the association who appointed the present committee.

Mr. RYAN. I have a circular here in my hand, a letter that was sent out by somebody, in which his name is mentioned—A. L. Winton, of Connecticut.

Doctor WILEY. As what?

Mr. RYAN. Among several others.

Doctor WILEY. As what; as a member?

Mr. RYAN. This purports to be an official statement issued in Chicago February 23, 1900, by the standards committee of the National Association of State, Dairy, and Food Departments.

Doctor WILEY. Oh, yes; that is another committee altogether. He is a member of that committee.

Mr. RYAN. He is a member of that committee?

Doctor WILEY. Yes.

Mr. RYAN. And one from Illinois, one from Washington, one from Minnesota, Ohio, Wisconsin, and so on.

Doctor WILEY. That is another committee altogether, appointed very much subsequent to what this was—many years after. This present committee, authorized by law to advise the Secretary, or that he is authorized to consult—I had better put it that way, because that is what it is—was appointed by Mr. A. L. Winton.

Mr. BARTLETT. That is, in the act of 1902 he was authorized to consult them?

Doctor WILEY. Yes, sir. The original committee consisted of Mr. H. W. Wiley; Mr. H. A. Weber, of Ohio; Mr. M. A. Scovell, of Kentucky; Mr. E. H. Jenkins, of New Haven, and Mr. William Frear, of Pennsylvania.

Mr. BARTLETT. They are what, Doctor, you say?

Doctor WILEY. That was in the fourteenth convention, bulletin 51, page 139.

Mr. BARTLETT. What did you say these gentlemen, Mr. Frear, Mr. Jenkins, Mr. Scovell, and Mr. Weber, are?

Doctor WILEY. They are the Food Standards Committee of the Association of the Official Agricultural Chemists.

Mr. BARTLETT. Yes; all right. Now, go ahead.

Doctor WILEY. This committee served as indicated at that time until 1901, when Mr. Wiley resigned the chairmanship, and was succeeded by Mr. Frear.

I want to say to the committee just a word as to who these gentlemen are, with the exception of myself; I am not going to say anything about myself.

Mr. M. A. Scovell is a chemist by training, but for many years has been director of the agricultural experiment station of Kentucky. He has had charge, under the Kentucky law, of the administration of the food laws of that State. He is a gentleman of rare attainments, and one who is not only respected in Kentucky, where he lives, but all over the country, as a man of integrity and ability.

Mr. BARTLETT. He is superintendent, you say, of the agricultural station?

Doctor WILEY. Yes, sir; and as the director of the food service of the State of Kentucky he has had occasion, professionally and in his official capacity, to study into all these problems which come before the committee as regards the composition of foods.

Mr. E. H. Jenkins is director of the agricultural experiment station of Connecticut and has had a service entirely similar to that of Mr. Scovell. He does the chemical work for the food commissioner of Connecticut. He is not the commissioner himself, but does all the work of a chemical character, or has it done under his direction, connected with the enforcement of the food laws of that State.

Doctor Frear is the State chemist of Pennsylvania and vice-director of the agricultural experiment station of Pennsylvania. For many years he has been the principal man in aiding the food commissioner of Pennsylvania to execute the food laws of that State. I suppose Doctor Frear has been on the witness stand in questions of food adulterations oftener, perhaps, than any other one man in the United States and has the highest reputation for ability and integrity wherever he has appeared. He is a man thoroughly informed respecting every matter which has to be advised about in fixing standards of composition and purity of food products.

Prof. H. A. Weber is professor of agricultural chemistry in the University of Ohio. He was for years the chemist of the State food commissioner of Ohio and, perhaps, next to Doctor Frear, has had one of the very largest experiences in that matter.

Mr. BARTLETT. Is he the director of the agricultural station?

Doctor WILEY. No; he is not the director of the agricultural station of Ohio; that is Mr. Thorn. He is professor of agricultural chemistry.

That shows you the qualifications of these men. They were appointed long before any idea of advising the Secretary of Agriculture was ever thought of; and it was only because they had the information which the Secretary wanted that it was suggested in the act that he advise with them particularly in this matter, because they had more information on the subject than any other four men in the United States of America.

Mr. ESCH. Now, Doctor, those are all distinguished chemists. One of the points made by Doctor Vaughan was that, being chemists, they would not necessarily be authorities on pathology, physiology, bacteriology, and kindred subjects, and that therefore before a standard should be determined we ought to get the judgment of men who are particularly versed in these particular lines. What is your view on that subject?

Doctor WILEY. I think you rather misquote Professor Vaughan a little in that respect.

Mr. ESCH. Possibly I do.

Doctor WILEY. He did not say anything about fixing standards of purity for foods as far as composition and as to wholesomeness is concerned; and I am sure the Secretary of Agriculture never had any intention of consulting only these experts in that respect as his final experts. The Secretary, of course, can speak for himself; but he usually consults me about matters of this kind as to whom he should consult, and I certainly have always intended to advise him to apply to just such men as I have spoken of a while ago whenever the question of wholesomeness comes up. And you will see that we have always reserved on that matter of purity of standards any question of preservatives for future consideration, and do not intend to take that up until such experts as Professor Vaughan has spoken of, and as I have spoken of here, are called in to advise the Secretary of Agriculture on those important points.

Mr. TOWNSEND. I understand that that is all that the reputable manufacturers are asking in this country.

Doctor WILEY. Not only should the manufacturers have that, but the people of this country should have it, and your committee and everybody should have it. I am, perhaps, as enthusiastically in favor of that as any man that has appeared on this floor. I do not think it is possible that anyone should think of omitting such a consultation on such a question.

But another point has been brought up repeatedly, to the effect that the food commissioners themselves have repudiated the standards which the Secretary of Agriculture has proclaimed. That charge has been made repeatedly in the public press, and was made before the House Committee on Agriculture; and I took the liberty of writing a letter to each food commissioner and asking him specifically to state what his attitude was toward the standards which had been proclaimed. I am not going to read these replies. I will only tell you who they are from, and I will tell you the quotation which I took from the Retailers' Journal of February, 1906, which I quoted in this letter, so that they could see what had been stated. This is the quotation:

The State food commissioners who are giving their support to this bill—

Referring to H. R. 13853. That is, I think, known as the Lorimer bill—

Assert that no other national food law is needed. They declare, in addition, that Doctor Wiley's food standards—

Remember, Doctor Wiley's food standards—

are impractical, and assert, in reply to the demand for uniform food standards, that the commissioners of the various States which have pure-food laws already have under way plans to insure such uniformity in the State laws.

So I wrote to the food commissioners; many of the States have no food commissioners, have no health officers charged with the enforcement of food laws; but I wrote to those who had. I wrote to thirty-two, I think, or thirty-three, and have eighteen replies, and I will probably get more.

From North Dakota I have a reply signed by E. F. Ladd, saying:

I am in favor of the food standards as compiled by the Secretary of Agriculture.

That is one clause.

Tennessee:

I consider the food standards are as fair and reasonable as it would be possible to make them, and the only man to whom they should be impractical would be the willful adulterator.

Washington:

In answer to the question, "In your opinion are the food standards as proclaimed by the Secretary of Agriculture impractical?" I simply answer, "No."

In further explanation of my attitude in this matter, allow me to state that in compiling a few rulings for the use of this office and the trade in the State I copied in their entirety * * * the food standards as adopted by the Secretary of Agriculture.

Illinois: Now, Illinois is important, because, I am sorry to say, Mr. Chairman (but you ought to know the truth in this case), that the man who has stirred up the most of this "ruction" is the State chemist of Illinois. I do not speak in any personal way, but it is a well-known fact that he is the man who has led in the attempt to influence the public mind into the belief that these food standards have been tabooed by the food commissioners, and therefore you will read Mr. Jones's letter with a great deal of interest, because he goes considerably out of the answer to the question and states his opinion of the efforts which his chemist has made.

Mr. TOWNSEND. As a result of those letters, do you think that the States will adopt these standards, as a rule, if we pass this law?

Doctor WILEY. I have here a list of a large number of States that have adopted them, some by act of legislature and others by the authority of their food commissioners, and in every State where any action at all has been taken it has been the action of adoption and use.

Mr. TOWNSEND. And that is one of the greatest benefits to be derived from it, is it not—to get uniformity?

Doctor WILEY. It is one of the greatest benefits, Mr. Townsend, that has ever been conferred upon the food officials of this country, because no one claims that these standards are perfect. Human ingenuity could not make them perfect. But they represent the best thought and the best study of eight long years of study, and in consultation with—I have not made a census of it, but I suppose from 150 to 200 experts on these matters have been consulted by that food committee, and all the manufacturers have been consulted, for every one of these standards that has been put in here—every single one. We have met in Chicago, we have met in New York, we have met in Boston, we have met in Washington, and invited all these people to come to us, and they have come and fully treated and discussed all these points.

Mr. TOWNSEND. How do you proceed, Doctor, in case you adopt a new standard for some staple product of manufacture which would affect the manufacturer of that article? Do you give him time to get ready for it?

Doctor WILEY. All the time he wants. As long as he has anything to offer we refrain from making any advice to the Secretary. That is the reason we print and send these standards out so many times. For instance, the Secretary has called the food standards committee to meet here next Monday to finally look over the third edition of a set of standards on extracts that have been twice submitted to the trade and on which they have had two sets of public hearings. Now, we have again sent them out and asked for the final criticisms, and those will all be in by the end of this week and the commission will then meet to

go over them finally and advise the Secretary as to the proclamation of these standards.

Mr. TOWNSEND. If you find a certain preservative, in your judgment and in the judgment of this board, to be harmful, would it be your policy to suggest a method of preparing that food without the preservative?

Doctor WILEY. Undoubtedly; and I am going to come to that presently, Mr. Townsend. That is a very important point that you have brought out—extremely important in connection with this very subject; but I will say to you that this committee as constituted now would never give any advice on its own responsibility in regard to wholesomeness, because, as has been very properly stated here, not one of them claims that he is solely a pharmacologist or physiologica chemist.

Mr. TOWNSEND. I was suggesting that if we create this board—

Doctor WILEY. If you do have a board, this additional board that the Secretary will consult, they will do the same thing. If they find anything that they think is harmful, they will invite all the manufacturers to come in and discuss it, and will get all the evidence they can. They will do just as we have done here, undoubtedly. It will be practically the same committee, because it will be one selected by the Secretary of Agriculture, and they will do exactly the same thing we have done. Every single point that can possibly be under discussion will be openly discussed, and ample time will be given to take all the evidence that anybody wants to submit; and the result will be that we will finally get a set of views in regard to wholesomeness that will be as valuable as these in regard to composition. That is what I think will happen.

Mr. TOWNSEND. I think that is right.

Doctor WILEY. That is just what we want and what you want, I think, exactly.

Mr. TOWNSEND. Yes, sir.

Doctor WILEY. And it will be gotten in the same way.

Now, what we object to, Mr. Chairman, are these unwarranted attacks upon the work of this commission, which has been approved by every single food commissioner of this country; and not only that, but you will be surprised to know how many requests we get for certified copies of these standards to go before the courts of the different States. I have some of them right here in connection with this matter. The Secretary puts his seal on them and they are sent out and are introduced into the courts. I will give you a little illustration.

I was summoned by the court in Philadelphia, not long ago, to appear as a witness because a firm had sold sausages to the Marine Hospital there—the navy-yard—which were found to contain a large amount of borax, and the commissioner of the State brought suit against them under the law. I was summoned as a witness, but the train was delayed, and instead of getting to Philadelphia at 10 o'clock I did not get there until 12. Meanwhile all the evidence had been put in and the trial was ended, and the only question was about this bulletin. The judge asked: "What do you expect to prove by Doctor Wiley when he comes?" The prosecutor said: "I expect to prove by Doctor Wiley that he wrote that bulletin and that those are his views." The judge said: "Well, does the defense deny it?" and the

attorney for the defense said: "Why, no; there is no use of waiting for Doctor Wiley. We know that he wrote that book and that those are his views, and we will waive that point. We will let the thing go in as evidence without any identification."

Mr. BARTLETT. That was done by consent?

Doctor WILEY. By consent, yes, sir; but in these other cases we get a request for certified copies and send them.

Mr. BARTLETT. Certified copies of what?

Doctor WILEY. Of the food standards.

Mr. BARTLETT. What law makes that admissible? I do not understand that.

Doctor WILEY. It is because they were prepared for the advice of food officials and for the information of the courts. That was in the original act under which these were prepared. It was dropped out of the last act, but it was in the original act under which these were prepared, and it was for the use of food officials and for the information of the courts. That is what they were prepared for. Therefore we had a warrant of law to send them out, and the Secretary does that.

Now, there is a list of the States that have adopted these standards.

Mr. TOWNSEND. How many of them are there, do you think—about how many?

Doctor WILEY. Connecticut, Indiana, Kentucky, Maine, North Dakota, Nebraska, and a number of others that some of these have been adopted in. Perhaps I had better read them.

Mr. TOWNSEND. Well, no; I do not care about that.

Doctor WILEY. It is all down here, Mr. Townsend; that is, the States that have adopted them by act of legislature are stated here, and those that have adopted them by authority conferred on the food commissioner are here.

Mr. TOWNSEND. I thought you could tell us generally.

Doctor WILEY. Well, I could not without running over this list, because they are arranged here alphabetically; but all that information is there.

I have also here the attitude of the States in regard to preservatives—those that forbid and those that permit their use. You will find that useful, because they are all classified, and you can get that readily. These are taken from the copies officially sent to us in compiling the State laws.

Mr. BARTLETT. Most of the States, if not all, have what they call pure-food laws, and most of them have commissioners—how many of the States?

Doctor WILEY. Nearly all the States have food laws, and about twenty or perhaps a few more of them have provided for the enforcement of those laws. The others are just laws without any methods of enforcement; and, in so far as I know, in those States the laws are not enforced. But where the law provides for a machinery to enforce the law, in most States it is enforced very rigidly. That is all brought out in this statement.

Mr. BARTLETT. That is what I want. So you say that where they have adopted these food laws and appointed food commissioners or officers to watch the enforcement of them, they are enforced very properly?

Doctor WILEY. Yes, very efficiently, as far as the State can go. And I will say this, Mr. Chairman, that in every State, I believe, where the statute has previously prescribed the standard, and, of

course, required an act of the legislature, I believe in every other case these standards have been adopted by the food commissioners in toto. In fact, one poor State made a great mistake in adopting the preliminary report we sent out for criticism, thinking it contained the official standards, and now they are in a pickle to know what to do about it. They did not notice that it was only sent out as a preliminary suggestion and not as a standard at all; and of course the standards as finally adopted would be very different from those which were at first proposed, because it is remarkable how we get the information that we want when we send these out and ask for criticisms, and thereby are enabled to construct finally a standard of high efficiency, not absolute accuracy, of course.

Mr. TOWNSEND. I wanted to ask you one other question, Doctor. I find that the bill here does not include the word "coating." Why was that left out?

Doctor WILEY. What?

Mr. TOWNSEND. Coating as a means of committing a fraud, possibly by covering up inferiority.

Doctor WILEY. I have not any idea why that was left out. Does it not say "polishing" or "coating?"

Mr. TOWNSEND. I did not find it so, and I did see it in some of the other measures.

Doctor WILEY. It certainly was in some of the bills, because it seems to me that I remember that those phrases were in the bill.

Mr. TOWNSEND. Well, coating could be used for covering up inferiority, could it not?

Doctor WILEY. It could very well be, and that should be attended to if it is not provided for in the definitions.

Mr. ESCH. Is it practiced as to coffee?

Doctor WILEY. Coating for coffee?

Mr. ESCH. Yes.

Doctor WILEY. I do not think coating for coffee is ever intended to conceal inferiority. They coat roasted coffee to preserve the aroma.

Mr. BARTLETT. They did that when I was a child, years and years ago. My grandmother used to do it.

Doctor WILEY. By coating it in egg?

Mr. BARTLETT. Yes; the white of an egg.

Doctor WILEY. Yes, they do that yet; but I have never in my life seen coffee coated to conceal inferiority. In fact a coated coffee is at once distinguished from a genuine uncoated coffee by its appearance.

Mr. ESCH. That was the very question at issue in the Arbuckle coffee case.

Doctor WILEY. Yes; that was the very question at issue. Arbuckle was accused of trying to conceal inferiority. That was the charge made against him; and it seems to me it was not supported by the evidence, although the jury convicted him [laughter] in spite of Professor Vaughan and myself. But of course you know the history of that case. When it was sent to the upper court it was reversed with a most scathing statement of the judge above that the whole thing was contrary to law and evidence.

Mr. ESCH. They came pretty near putting the food commissioner out of business, though.

Doctor WILEY. They probably did; but it certainly was a curious case.

I have one point here that refers to a feature of the bill that I hate to mention, Mr. Chairman, because I was consulted in regard to the very language which I am criticising. Mr. Gardner asked me to voice his views in an amendment. He thought I could write it better than he could; and I believe that is the only thing in the bill that I wrote—this amendment about the codfish. I prepared an amendment setting forth the views of Mr. Gardner in the matter. We had several conferences, and that amendment is in the bill.

Now, I am sorry it is here, not because I do not want codfish, but for this reason: This bill is an ethical bill; that is the whole strength and support of it. It is founded on justice; and an ethical bill never accords to one product of any one kind what it does not accord to other products of the same kind. Now, you know, gentlemen, that I got into very great disfavor in this country, and am still, because I opposed with all the eloquence and argument that I could command the so-called oleomargarine bill; and yet there is no man in this country who ever has done more to discover and punish the adulteration of butter than I have. But I did not think it was an ethical thing, and do not think it is yet, to permit the manipulation of one food product and forbid it in another. And that is my objection; not that I care one penny for the codfish that comes into this market; nobody is going to be injured by it. I sent my young man into the restaurants the other day and said, "You go in and buy some codfish balls, and do not eat them, but bring them over, and we will see what is in them." Two out of the three contained the merest trace of borax. If they had ever had any in them it had all been washed out. The other contained a very large quantity—showing that if a person was careful in preparing his meat he might get it practically all out. But who knows who is going to be careful and who is not?

If I were executing a food law I certainly never would bring an action against a thing like that. I think a man who executes a food law ought to have some judgment and execute the law in the spirit in which it is enacted. A man who is going to strike catsup and codfish balls simply because they may contain something which the law forbids, when he knows that they are contained in most minute quantities, is, it seems to me, straining at a gnat and swallowing a camel. And yet I would hate to see an unethical principle grafted into a bill to protect a very insignificant quantity of food. And while I sympathize with Mr. Gardner in his honest endeavor to protect his people, and he has my entire sympathy, I doubt if that is the best way to do it. If there is a better way I would like to do it in some better way; and I have recommended in this paper right here that I think it is far better, and it is an amendment which I would support if you gentlemen think it ought to be done, to specifically except catsup and codfish from the operations of the law. There is no bad ethics about that at all.

Mr. BARTLETT. What are you going to do about these fruit sirups?

Doctor WILEY. Put that in, too; include that.

Mr. RYAN. Would that be fair to the public who consume those foods?

Doctor WILEY. You have asked me here if I thought that in those small quantities a preservative would be injurious. That was the question put to me. I said I believed that it would be immeasurably small; that is, it would be an injury which could not be measured.

That is the expression I used in regard to it—infinitesimally small; and being infinitesimally small, you know, as a lawyer, *de minimis non curat lex*. That is a good law principle, and that is a good principle for a man who enforces a food law, and certainly it is something that no man would attempt in a case like this of *de minimis*. But if you argue, on the other hand, that because it is little it is harmless, then you come up against me. That is not a valid argument. That is not logic. That is not true—that because the dose is small it is not injurious; and that is where the unethical principle comes in. Now, let us get at this in some better way.

Mr. KENNEDY. You think that in preserving catsup the good that this preservative does probably ought to permit its use? Is that it?

Doctor WILEY. I will not go so far as that. I say that the harm it does is infinitesimally small. If you will put it that way I will agree with you; but I would not go so far as the other.

Mr. KENNEDY. The amount it contains is to be on the label, though?

Doctor WILEY. I think that is only common honesty.

Mr. TOWNSEND. I was going to ask you that. When you use a preservative of any kind, ought not that to go on the label—what kind of preservative it is, and how much of it is used?

Doctor WILEY. I think it is only honesty to the consumer to do that. I think that is reasonable, and ought to be done—not as an ethical principle, particularly, but because it is honest and open. I certainly agree to that.

So I say that the danger here is not in protecting what you want to protect, but in opening the door; because if you say a preservative is harmless in small quantities in catsup it is harmless in small quantities in everything else that anybody wants to use it in. I have a paper there by Professor Shepard, who shows that a man may easily get 40 doses of minimum quantity like that in any one day if such things are permitted, and 40 minimum doses make one large dose. I will show you again that you can preserve food products and use them in small quantities for as long a period as you want to without any danger at all of fermentation or decay, and without the use of these things. I have made a special effort to bring this point before the committee, because I know that that is one point in which all its members are interested.

First, I will state that one objection to the manufacture of sirups from the sugar cane of Georgia, for instance, and other parts of this country, sorghum, has been that in the hot summer months it ferments, and four years ago Congress authorized the Secretary of Agriculture to investigate all problems connected with the manufacture of table sirup. That was one of the first things we undertook—to see what was the reason of this fermentation. It was the first experiment we made under that law—to see what was the cause. We need not look far for the cause. Nothing ever ferments unless a yeast of some kind gets into it. If you keep the yeast out you will have no fermentation, and the simple remedy was at once evident—that is, put your sirup hot into the barrel as it comes off the kettle and it will sterilize itself and sterilize the barrel. Then we directed that a sterilized bung be at once driven into the barrel while it was still hot, and we had a barrel of it made right away, three years ago. Mighty poor stuff it was, too, as far as sirup was concerned, but it was good for that purpose. It was made thin so as to give it every chance to ferment if it was going to.

Mr. BARTLETT. Is that sirup made out of the sugar cane or sorghum?

Doctor WILEY. That was made in Georgia.

Mr. BARTLETT. Was it made out of cane?

Doctor WILEY. It was made out of sugar cane.

Mr. BARTLETT. That is cane sirup and not what we call sorghum?

Doctor WILEY. No, sir; that is sugar cane. That was made in 1902, and it has been in a barrel in our Bureau ever since; and there has never been a sign of fermentation about it, and never will be. There may be now, because we have opened it to take out this sample. That shows, in the first place, that there is no difficulty at all in keeping your sirup in barrels as long as you want to keep it, and making it as thin as you please.

Mr. TOWNSEND. How about opening it to draw from it, as you would for sale?

Doctor WILEY. I am coming to that. That is the important point of my scheme. There [producing another sample] is some that is very much better, that we made this year. That is much more wholesome.

While I am on this question of sirup, Mr. Chairman, I want to show you what we have done down there, because it is a great work, and will be appreciated. I do not say that because we did it, but because it is a great service to the public.

Mr. BARTLETT. You mean down in Waycross?

Doctor WILEY. Yes; we not only have shown that you can keep your sirup in barrels as long as you want to, but we have shown that the best sirup that you can make, and the most palatable, is one that contains no added chemical of any kind, not even lime or sulphur, which is so commonly used, and we make a sirup which is much more palatable and much more wholesome. There is a sample of our finished product. We have made 11,000 gallons of it this year without a drop of any chemical—not an ounce of any kind; and no better or more wholesome sirup than that was ever made in this world, and it will keep in barrels just as long as you want it.

Mr. RYAN. But when you go to draw from it, as a grocer will, what will happen?

Doctor WILEY. I have that all ready for you. We had a very valuable collaborator in this service, the agricultural experiment station of Louisiana, which invented a faucet by which you can draw off from a barrel any quantity, as often as you please, of this sterilized sirup and never introduce a single germ. That faucet is just as easily applied to a catsup bottle as it is to a barrel, and for 25 cents, if there was a demand for them, every housekeeper could have one of those faucets that could be used on bottle after bottle of catsup.

Mr. TOWNSEND. If they had a monopoly of those faucets they might come up in price, might they not?

Doctor WILEY. They are published openly by the State of Louisiana; they are everybody's property.

Mr. TOWNSEND. Oh! I thought you said they had a patent on it.

Doctor WILEY. Oh, no; it is everybody's property. Here is a full description of it. It is simply a faucet which has a plug of sterilized cotton through which the air can enter to take the place of the withdrawn portion, and as long as that is sterilized (it can be warmed from time to time if you think it is going to become impregnated or infected)

you can draw off a pint or a gallon to-day or to-morrow or next week, ad infinitum.

Mr. BARTLETT. That is a good thing to put on a champagne bottle, is it not?

Doctor WILEY. Excellent; only champagne is not likely to ferment, nor is it likely to last long enough to need a protection of that kind. [Laughter.]

Now, I say to you gentlemen that all this difficulty about keeping catsup is a phantom. I have a bottle which was sent to me by the Commissary-General. That was opened a week ago yesterday. No particularly care has been taken with it. It has been sitting around all the time. It is perfectly sweet. There has been no other stopper in it at all except this.

Mr. BARTLETT. You say that has no preservative in it?

Doctor WILEY. None whatever.

Mr. TOWNSEND. Who made that?

Doctor WILEY. Heinz. It was furnished to the Army, and sent to us to be examined by the Army, to see if it was what it was claimed to be.

Here are two samples sent to us by Heinz which we have kept ever since. One was sent in 1903, and this was sent at the same time. We have had those two years and a half. They have never been opened, of course; but there is no tendency to ferment. There is absolutely no trouble in making catsup and keeping it just as you do sweet peas, and no more need for preservatives now with our present knowledge; and still I would not say that manufacturers should be forced at once to change their methods. Give them time.

Mr. TOWNSEND. I have a telegram here that I want to call your attention to. Mr. Allen, a man that was on the stand here, testified that Lutz & Schramm had been manufacturing this catsup without any preservative, successfully, as he stated, and two or three others. They sent a telegram, dated 23d last, to Mr. Williams at the New Willard, stating this:

Have been putting up catsup for year or more without preservatives. Poor success. Recommend benzoic acid. Lutz, Schramm & Co.

Doctor WILEY. Of course I have nothing to do with that, Mr. Chairman, but I know catsup can be sterilized. If you can sterilize peas you can sterilize catsup. That is a proposition that nobody will deny.

Mr. TOWNSEND. What I was getting at is this: You are sure that Heinz puts up that catsup without any preservative, are you?

Doctor WILEY. Would you let Doctor Bigelow testify to that? He has charge of the examinations. I can only take his word for it.

Mr. TOWNSEND. Well, it would not be necessary, Doctor. I do not want to interfere with your statement.

Doctor WILEY. We have never found any preservative in it. As you understand, it would be a long journey to look for every possible preservative in a bottle of catsup.

Mr. TOWNSEND. Yes.

Doctor WILEY. We have looked for those that are commonly employed and those that are extracted by ether—salicylic acid, benzoic acid, etc.

Mr. TOWNSEND. Now, they put in spices, do they, in those things?

Doctor WILEY. I think they do. I think all manufacturers put in spices.

Mr. TOWNSEND. And some of those spices contain preservatives, do they?

Doctor WILEY. Spices, I believe, are supposed to have a preservative effect.

Mr. TOWNSEND. And have you analyzed those spices to know whether they are injurious or not?

Doctor WILEY. No; we have not.

Mr. TOWNSEND. If that catsup can be put up without preservatives, it would be for the interest of manufacturers to put it up in that way, would it not?

Doctor WILEY. Undoubtedly.

Mr. TOWNSEND. It is always expensive to use a preservative, is it not?

Doctor WILEY. Yes, but not so expensive as to thoroughly sterilize.

Mr. TOWNSEND. If Heinz puts up catsup without a preservative, why does he put up catsup with a preservative?

Doctor WILEY. Because it is so much cheaper, and where he can sell it with a preservative he makes more money.

Mr. TOWNSEND. I thought I understood you to say that he would not use a preservative if he could get along without it.

Doctor WILEY. I did not quote Mr. Heinz at all; I never said anything about that.

Mr. TOWNSEND. Well, anybody. I was asking you if a manufacturer would use it if he could get along without it.

Doctor WILEY. I say that in the end any man who makes catsup without a preservative is going to get the market against the man who uses it, provided it is stated on the label, because people will prefer the non-preserved material if it is just as good.

Mr. KENNEDY. Now, Doctor, there was something said here about making catsup, to the effect that there was difficulty in getting the tomatoes and keeping them pure and sweet without the use of benzoic acid until they could be shipped into the factory, and so on.

Doctor WILEY. Yes.

Mr. KENNEDY. And the explanation was made that the benzoic acid that was first applied to the tomato before it was manufactured was practically driven off by boiling.

Doctor WILEY. Yes.

Mr. KENNEDY. How about that? Have you paid any particular attention to that in regard to manufacturing catsup?

Doctor WILEY. No; I have not; not at all.

Mr. KENNEDY. You would not oppose the use of some preservative of that kind, that would be driven off in the boiling or in the preparation?

Doctor WILEY. I am not opposing the use of any preservative. I am trying to show you gentlemen that preservatives are harmful and that foods can be kept without them. I am not saying that they should not be used; I have said distinctly that they should be in some cases. That is probably one of the cases. Do not misunderstand my attitude at all.

Mr. KENNEDY. I have not misunderstood you.

Mr. TOWNSEND. No; I do not misunderstand you.

Mr. KENNEDY. But I wanted to hear you on that subject a little.

Mr. TOWNSEND. But I was trying to find out, because I am convinced from the testimony here that the Heinz people do use a pre-

servative; and I was wondering why they would do it if they had a better market without it and could just as well do it.

Doctor WILEY. You would have to ask them that. I could not even intimate as to that. I have said a while ago what I thought it might be, but of course that is a mere opinion of mine. I do not know well anybody connected with Heinz.

Mr. TOWNSEND. Did you ever try to make any catsup?

Doctor WILEY. Never in my life.

Mr. TOWNSEND. So you do not know from experience?

Doctor WILEY. No; I am not an expert in catsup making. I do know that it is only reasonable to suppose, and I can state positively that a catsup can be preserved indefinitely by sterilization.

Mr. TOWNSEND. As to fruit butters and sweet pickles—have you experimented with those?

Doctor WILEY. Sweet pickles, I believe, are not sterilized by heat; but anything that heat is used in making, and that is not ruined by heat at the sterilization point, can be sterilized by heat. But as to sweet pickles, I doubt whether they would be subject to sterilization or not.

Mr. TOWNSEND. You do not know whether they could be put up without a preservative or not?

Doctor WILEY. No; the only point that I want to bring out before that committee (and I want to bring that out strongly) is that any food substance in the manufacture of which heat is necessary can be sterilized and kept indefinitely without the aid of any preservative.

Mr. TOWNSEND. Now, you have told us how you could keep a barrel of sirup, after it was opened, by means of that sterilized faucet.

Doctor WILEY. Yes.

Mr. TOWNSEND. How would you do that with a bottle of catsup?

Doctor WILEY. Why, you can put exactly such a faucet in there. It has on one side a plug of sterilized cotton which will admit the air, and on the other a stopcock and a tube in which you can shake it out just as you always do with a bottle of catsup, through a hole, and then turn the stopcock, and the air that enters is sterilized, and you will never have any fermentation. It is impossible. Then you will get rid of that gummy, nasty, revolting spectacle which we see so often on the tables of restaurants of the catsup bottle surrounded with flies. You have all seen that hundreds of times in your lives. It is the most unsanitary arrangement you could well imagine—the gummy top of a catsup bottle. Even that alone ought to induce everybody to stop that way of using it; and any housewife with a little care can get along very well for a week or ten days with any sterilized bottle of catsup if she will open it quickly, pour out what she wants to use, and immediately restopper it with a stopper taken out of boiling water. There is no trouble at all about these things. The catsup will keep an indefinite time, and there is no dirt or nastiness about the top.

I mention that because of its very supreme importance, it seems to me, in this question. I want to show to you gentlemen that the claims of the manufacturers that they must use a preservative are not well founded in this matter; that the product can be made without it.

If you say, "Can it be made cheaper?" I will say "No;" but I do not think that is an ethical question, if it costs more or less, which we should consider. That is a question for the consumer.

Mr. KENNEDY. You said, Doctor, that you had this catsup standing around for quite a while without a stopper in it?

Doctor WILEY. No, no; stoppered. It was opened, but immediately restoppered. I did that to show that you can open a catsup bottle and immediately restopper it, and it will keep sweet for a week, at least. That is an important fact to be brought before this committee, and there is the demonstration of it.

Mr. KENNEDY. I suppose if it was possible to keep it in a room where the air was entirely sterile, it would keep with the stopper out?

Doctor WILEY. With the stopper out, yes; but that would hardly be possible.

Mr. MANN. Well, Doctor, is that so, ordinarily, about things that ferment—that the amount of air that gets to them makes any difference?

Doctor WILEY. Not a bit; the air has nothing to do with it.

Mr. MANN. It is the bacteria in the air?

Doctor WILEY. It is the bacteria that the air carries.

Mr. MANN. Yes. Now, if the bacteria get in there, they do not have to be very numerous to commence their work; the progeny come very quickly?

Doctor WILEY. Oh, yes; they grow very rapidly—very rapidly.

Mr. MANN. How long does it take? Will not enough bacteria get in there in a few minutes to ferment that catsup?

Doctor WILEY. No; it is not likely. I do not suppose there are more than perhaps two or three yeasts to a cubic centimeter of air in this room. Moreover, it depends upon the currents of the air.

Now, bacteria always fall into a thing; they never creep into it. Every bacteriologist will tell you that. Where a bacteriologist opens his sterilized flask and takes the plug of cotton out he does not do it in an open room like this, but he does it in a little glass shed. You have seen him do it, doubtless. You can take a stopper out under those circumstances, and there is no danger of infection at all, because there is nothing to drop in. A housewife who would put a plate of glass over a quiet spot—not in the kitchen, but in the place where you keep your food, your storeroom or larder—and open her catsup under there would have no danger whatever of infection. That is a simple thing, easily done, and there is no more danger about it than the bacteriologist has when he opens his flask, takes out his plug of sterilized cotton, removes a portion of it, and puts the plug back. He gets no infection. It is a simple matter, gentlemen. It needs a little care, a little training; but is it not worth while, rather than to admit an unethical principle?

That is the thing I am afraid of; not that you are going to hurt anybody by doing it, but I do not want the principle recognized, and especially by such a puissant body as the Congress of the United States, that carries in its dictum more power, more force, than comes from any other body in the world; and it would be a most unfortunate thing that such an unethical principle should have the support of this great body, representing the majesty of this great Republic.

Now, I want to close this argument with just these words. I have a little demonstration that I want to make to you that I think will interest you.

Mr. ESCH. Well, Doctor, before you do that, have you anything to say about whisky?

Doctor WILEY. Yes; that is the demonstration. [Laughter.] I was saving that to the last. In better form, and perhaps more extended, is the text of what I have said here in what I submit for publication.

Now, I just want to add this closing sentence, Mr. Chairman: I do not want to do anything to hurt our manufacturers. I believe that, next to agriculture, the strength and glory and prosperity of this country come from the manufacturer. I want to see the farmer and the manufacturer brought together, as they are doing down in your country to-day (addressing Mr. Bartlett), to the mutual benefit of both.

Mr. MANN. Doctor, did you take up the question of the codfish, etc., while I was out?

Doctor WILEY. Yes.

Mr. MANN. I want to ask you a question about the importation of duck eggs, then.

Doctor WILEY. Yes, sir; I will be very glad to answer it. I know a good deal about that.

Mr. MANN. I know you have had a controversy about that.

Doctor WILEY. I have had quite a controversy about it. Shall I make the statement in regard to that?

The CHAIRMAN. Just let him finish that sentence he was on.

Doctor WILEY. I want to say this: I went down a short time ago to Atlantic City to address the canners' convention. (Pardon me for this little personal allusion, because I could not illustrate what I have to say without making it.) Doctor Fraser, who appeared before you, met me at the station and was very much frightened. He said: "I don't know whether you had better go down there or not. I never saw a body of men so hostile to any human being as they are to you." I said: "What is the matter?" "Well, they say you are trying to ruin their business." "Well," I said, "I can not help what they say; I am trying to save their business. That is what I am trying to do." I said: "I am not afraid to go before any American audience; I do not care if they have guns in their hip pockets, and if you will give me a chance to go before that audience, I will tell them exactly what I think." "Well," he said, "if you take the risk of physical injury"—mind you, he thought I would be physically injured, and I am pretty capable of taking care of myself, too, in a scrimmage.

I said: "I have no fear. That is not a packed audience of thugs. Those are American citizens, and I never saw an audience of American citizens yet that I could not get up and talk to and get respectful attention from, I do not care whether they agreed with me or not." I said: "You let me go before this convention." He said: "Well, now, you take the risk?" I said: "Yes; have a back door near by so I can get out." [Laughter.] "Well," he said, "now, you had better let another man speak before you, because they will cool off a little." "Well," I said, "if you want to cool them off, I will cool off, too, because I am a little frightened myself." And he did it, and made a very nice speech before mine; and then my time came, and I told the canners exactly the truth as I have tried to tell it to you to-day—that they, instead of helping their business by claiming the right to put a preservative or a coloring matter in their goods, were driving hundreds of thousands of American citizens away from the very stuff they wanted to sell them, because the act of one man will pervade the whole range of goods covered by that one man's output. When the people find saccharine or coal-tar sugar instead of sugar in

one man's canned goods, they immediately jump to the conclusion that everybody is using it, which is not the case; and yet that one man who does it injures the business of every man who does not do it.

"Now," I said, "if you want to get trade, as you ought to have, and as I believe you ought to have—I believe your product is one of the finest and best that can be offered to the American people and absolutely necessary to our welfare—you take the American people into your confidence, and you say to the American people, 'There is absolutely nothing in the goods which we present you but what we say is in them;' and then instead of selling one can you will sell three before five years. But if you continue to try to deceive the American people, and to claim the right to use things that 95 per cent of our people do not want you to use, your business is going to suffer, and as a plain business proposition you can not afford to do it."

Then they began to be respectful, more than respectful. One man even started a little applause, which the others joined in; and then I came to the crux of the whole business, the thing which I have said the most, and which they were going to eviscerate me for. That was this: In an address before the National Warehousemen's Association in this city I said: "Gentlemen, I am going to tell you a proposition that none of you will approve of, but which is true; and that is that when you put a food in cold storage you have got to date it, and when you take it out you have got to put on it the date when it was taken out, because the American people demand your confidence." And I said to those angry canners in Atlantic City: "Gentlemen, you have got to put the date on which your goods were canned in the can, so that it can not be scratched out." One man said: "Why, if we did that we could not sell it." "Well," I said, "I will accept that gage, that you could not sell it." I said: "You are honest business men. There is not a man here that will let his note go to protest. Is there one man in this room that wants to take one dollar from an American citizen which, if that American citizen knew what he was selling him, he would not give?" And for a moment there was no response, and then a tremendous outburst of applause all over the house.

Why? Because I had enunciated an ethical proposition to which there was no answer. There was not a man there, when he came to think of it, that wanted to do that thing. Not one of those men wanted to do that thing that I said; and yet he realized that he was doing it. And when I sat down I do not think anyone ever had more of an ovation than I had from that body of men who entered that hall full of hostility and opposition, simply because when the ethical principle is presented to the American people the American people will respond. They have done it in the insurance business; they have done it on the rate business; they will do it on the food business.

So I say to our manufacturers: "Take the American people into your confidence and your business will be placed upon a foundation from which it can not be shaken nor removed." I say, as a plain business proposition, that the men who put preservatives in foods had better stop it for their good and for the good of their business; and they will. And in five years from now (mark my words, Mr. Chairman), bill or no bill, we will not have to come here to argue about this matter, because there will be nothing to argue about—because this ethical principle, aside from any injury to health or anything of that

kind, is one which appeals, not only to the people who consume, but to the people who make the goods which they eat.

With these remarks, I submit the case to your judgment, saying that whatever your action is I shall heartily support, with what little influence I have, any measure which you bring forth, to have it enacted into law. [Applause.]

A MEMBER. You spoke of throwing some light on the whisky matter. Doctor WILEY. Oh, yes; that is the peroration.

Mr. MANN. Before you go on the whisky question I wish that you would, just in a few words, tell us about duck eggs.

Doctor WILEY. Oh, yes; that is an interesting question.

Mr. MANN. I think it is very interesting.

Doctor WILEY. That is a very interesting question.

You may know that up to a short time ago it was the custom, in May and June and in the summer time, in China to break eggs in immense quantities—duck and other eggs—to mix the fresh egg altogether and put in borax, usually about 2 or 3 per cent of borax, to preserve it. Then it was put in cans or in barrels, and the next winter was sent to us and sold to bakers in New York for egg stock, largely—mostly for that purpose.

When our bulletin came out showing that borax was injurious to health we refused to admit that, and that is the only instance, Mr. Chairman, in which we refused any food product of that kind on account of its being injurious to health since that law went into effect, as I believe. We said: "No; the law says a thing which is injurious to health shall not be imported into this country," and therefore we refused to let them import it. And I said to the importer: "Now, do not rely upon my decision in this case, I beg of you; take it to the court." I begged him to take it to the court. I said: "I want a judicial decision on the matter. I do not want you to be guided by my individual opinion; but let the court say whether or not this is true." But he would not do it. He simply destroyed his goods or sent them out of the country.

Then another case came up, a very peculiar one, which I think I will relate, and that is an importation of these Chinese eggs, not for the purpose of going into the bakery, but for entering into the manufacture of oleomargarine. Now, the contention was made (and truthfully made, too, I think) in that case that the material when it was put into the oleomargarine was washed with water so that practically all the borax was removed, and therefore there could be no objection to it on that account. After consulting with the law officers—I am not a law officer—it was decided that the law under which we are acting did not go into any such details; that it said "when it is offered at a port, if it is injurious to health," and that we are not compelled to follow it into consumption, because if we were it would tend to defeat the whole purpose of the law.

We never could decide anything until we followed it into the kitchen and saw how it was consumed. Therefore we denied the application for the entrance of this material, because it contained when offered for entry, as the law specified, a substance injurious to health. And I should be very much in favor of rejecting it on the other ground, that eggs preserved in that way are not fit to eat anyway. They have a very bad odor; they are apparently not fermented, but are certainly not appetizing at all, as you can readily imagine.

That is the egg story.

I suppose you gentlemen know that for several years we have had a law which excludes from this country substances which are injurious to health; but that is, I believe, the only instance in which we have exercised that law on account of injury to health. We have excluded a great many food products for misbranding, and because they are forbidden in the country from which they come, but not on account of injury to health except in this case.

I will say that the Germans no longer attempt to send boraxed sausages to this country. They were making them and sending them to this country when they were not permitted in their own country; but our law says that anything that is forbidden in any country can not be sent from that country here, and so we simply excluded those goods because they were excluded in Germany; not on account of any decision respecting their health.

The same way with salicylic acid. You can not import anything into this country from Germany or France that contains salicylic acid because that is forbidden in those countries, but you can from England.

Mr. TOWNSEND. We do not propose to be as liberal as they are. We forbid their manufacturing and selling it here but allow them to sell it abroad.

Mr. MANN. Is the amount of borax in these duck eggs of such a percentage as to be, without question, injurious to health?

Doctor WILEY. If consumed as food, absolutely without question; and we are not required, I think, to say that we will follow a man and see whether he tells the truth or not as to what he is going to do with it. I do not think that this firm in this case would have done anything but what they said, because they are most reputable and honorable men; but suppose some other person had done it?

Mr. MANN. If this provision in the Hepburn bill had been in the law, you would have been required to take some action of that sort, I suppose?

Doctor WILEY. Yes; and I hope the committee will read the paragraph where I have spoken about that. I think it is a very unfortunate thing that we are required to go into a man's kitchen and supervise his cooking, and I think that when you come to look into that thing you will find it would be the one unconstitutional thing in it, because it is a pure police regulation, which is solely committed to the States.

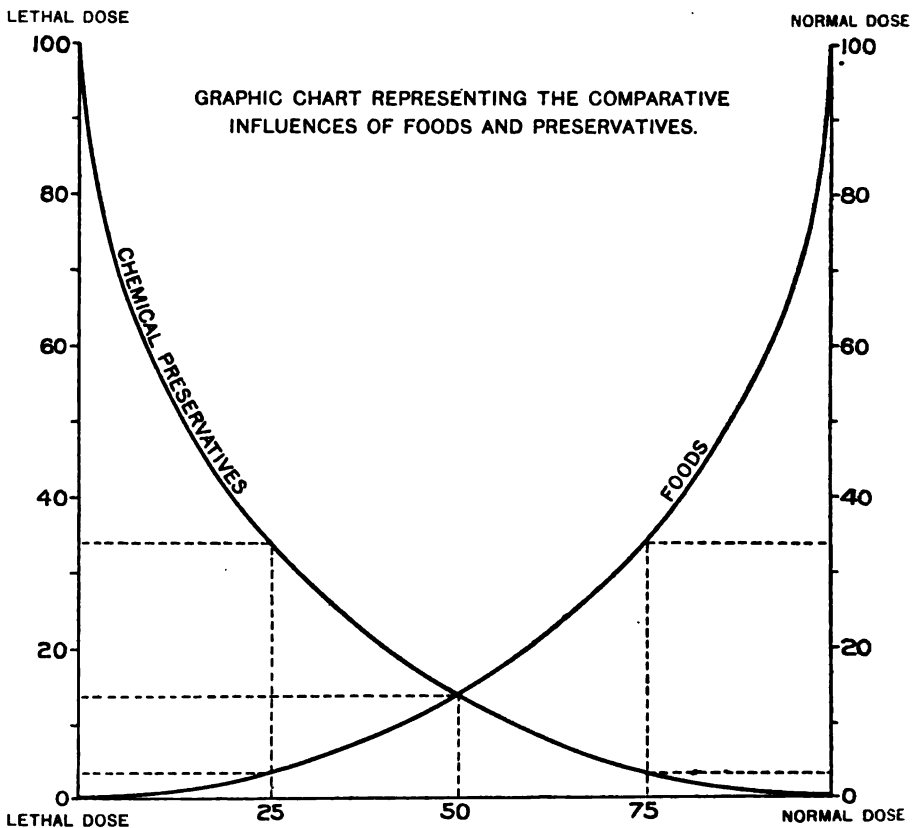
Mr. TOWNSEND. In what bill is that?

Doctor WILEY. The Hepburn bill—the clause which says that the thing must be judged when it is fit for consumption. Now, the preparation of a food for consumption is certainly under the supervision of the police powers of the States, and it is not in the unbroken packages which the law specifies as the only goods to which this law shall apply.

Mr. MANN. The provision of the Hepburn bill is not quite that, Doctor.

Doctor WILEY. But I want to say to you, gentlemen, that I am not frightened about that clause of the bill at all. That is just a little principle of ethics and constitutionality. Not being much of a constitutional lawyer I only suggest it; but I would like to have my distinguished friend here [Mr. Bartlett] look into that point of it particularly.

Mr. ESCH. Is saltpeter still used as a preservative anywhere, Doctor?



Doctor WILEY. I do not think saltpeter was ever used as a preservative. It was used to preserve color, but not to preserve food.

Mr. MANN. Is it injurious?

Doctor WILEY. I think saltpeter is a very injurious substance. It acts specifically on the kidneys very injuriously, and Professor Haliburton, whom I quoted this morning, agrees perfectly with that statement.

Mr. ESCH. Corned beef is colored with the use of saltpeter, is it not?

Doctor WILEY. That is just the same principle again. I would not be afraid to eat a piece of corned beef, because the amount of injury would be immeasurably small. Do not misunderstand me. I am not saying that it should not be used in corned beef. I would be sorry to see it left out. But if you put it on the principle of harmlessness, it could not go in. And that reminds me that I did not show you the thing which is most indicative of my argument. I am glad you mentioned that just now. I want that chart that was made this morning. A little graphic representation of an argument sometimes helps a great deal.

The suggestion has been repeatedly made here that because food was injurious we should legislate against it. Now, I have drawn here my argument in a graphic form. This is a graphic chart showing the comparative influence of foods and preservatives. Of course we have to assume the data on which this chart is constructed. You will understand that.

We will suppose that a normal dose of a drug is nothing. The normal dose of a drug in state of health is nothing. We do not need it at all. Now, imagine that the lethal dose of a drug—that is, the dose that will kill—is 100; and then we go to work and measure at three points—at 75, at 50, and at 25. There are points at which we can measure. We can not measure up toward the right there, because the line almost coincides with the basic line, and the deviation is so slight that no method of measurement that we know of could distinguish them.

Mr. TOWNSEND. If you transposed the words "lethal" and "normal" there, you would have your map right, would you not?

Doctor WILEY. No; the words are all right, but the figure "100" on the right there, over "normal dose," should be zero.

Mr. TOWNSEND. I see that; but ought it not to be 100 there where "lethal" is, where "zero" is there?

Doctor WILEY. Yes; that is right.

Mr. TOWNSEND. All right.

Doctor WILEY. That is right the way you suggest. The lethal dose of that drug is 100. That is written up there on the left. I will just trace that. The normal dose of a drug in the case of a person in health is zero. That should be zero. Then, if we use a little drug I can measure it here. I can measure it again here [indicating], and I can measure it again here [indicating]. Now from those three points I can construct a curve and calculate the lethal dose, which we will assume to be 100. That much drug would kill; no drug would not hurt at all.

The relative injury of a drug can be calculated mathematically from a curve constructed like that on experimental data, and I could tell you mathematically, by applying the calculus there, just what the hurtful value of that drug would be at an infinitely small distance from zero. You have doubtless, all of you, studied calculus, and you know how you

can integrate a vanishing function. I used to know a good deal about calculus myself, and I could by integral calculus tell you the injurious power of a drug at an infinitely small distance from zero—that is, an infinitely small dose.

Now, see what a contrast there is between a food and a drug.

The lethal dose of a food is none at all. That kills you; you are starved to death. The normal dose is what you eat normally, 100. I starve a man, and I measure the injury which he receives at different points. I can mathematically plot the point where he will die.

That one chart shows to this committee in a graphic form, better than any argument could, the position of a drug in a food as compared with the food itself. They are diametrically opposite. The lethal dose of one is the normal dose of the other, and vice versa. Therefore the argument *de minimis* as far as harmlessness is concerned is a wholly illogical and unmathematical argument, and can be demonstrated by calculus to be so.

Now we are ready, Mr. Chairman, for a short talk on whisky, if my assistants will bring the samples forward.

I will not call attention to the testimony of Mr. Hough, because he was not under oath; it is not expert testimony, but I want to say just this in regard to his contention: As you know, I was instructed last year, with a view of executing our food law respecting imported food products, to visit the manufacturers in Europe, as far as I could in the time I had at my disposal; and, especially, I was instructed by the Secretary to visit the distilleries in Scotland and Ireland, where Scotch and Irish whiskies are made. I may say that it was a very pleasant task to which I was assigned. [Laughter.] I was also instructed to visit the Charente to see how the real French brandy is made, and the Gironde to see how the real French wines are made, and the Rhine and Mosel to see how the real German wines are made. I spent three months in this very delightful task.

On my return I made a report to the Secretary of Agriculture, which he gave, in abstract, to the press, and which was published all over this country and in Europe. I stated that I had found that in Scotland whisky was made solely from pure barley malt, fermented in the proper way and distilled in a pot still, and that nothing else, in my opinion, was entitled to be called Scotch whisky except that product.

I stated also that in Glasgow and Edinburgh I found distilleries importing American maize, Indian corn—I was glad they were doing it; it is a good market for us—and making a spirit out of it, and that this spirit was mixed with the real Scotch whisky and sent to this country; and I doubted if there was a barrel—and that was about true, as events have shown—of real Scotch whisky in the United States.

I went to Ireland, and I found that whisky was made there exactly as it is in this country in Kentucky, just as Mr. Taylor (who is the only expert called on the question) has testified it was made. It is made there of barley malt and unmalted grain, just as in this country, the malt being used to convert the rest of the starch, and then it is fermented and distilled in a pot still and placed in the warehouse, just as it is in England and in Ireland.

In this country, too, we have great distilleries of spirits which make immense quantities of alcohol, and our law permits the mixing of

different spirits, under what is known as the rectifiers' clause of the internal-revenue law, which says that anyone who "mixes without rectifying" these spirits and makes a spurious whisky or gin or brandy shall be deemed to be a rectifier and must take out a rectifier's license. So that the law specifically says in this country that every mixed whisky is a spurious imitation of whisky. That is the act of Congress of the United States, a pretty good authority when it comes to definitions of that kind.

I said to the Secretary that in my opinion, if I were enforcing the law about whiskies coming to this country—I am not; I have simply tried to get all the information I could, and I did not want to begin to enforce a law without knowing what I was doing—I believed I could exclude from this country, under our law, any of these blended whiskies which were offered.

At that time, while I was in London, they were about to begin a great trial, which it was said would be the greatest trial that ever took place in that city in regard to a manufactured product, in which a publican had been cited under the English foods act for selling a bottle of whisky which was not of the character, quality, and kind demanded. That is the language of the English food act, and a very good one it is. That one sentence is the whole essence of the act.

This publican was cited to appear. He was defended by the greatest lawyer in England, Mr. Frederick Moulton, the leader of the English bar; and I was told that \$50,000 (£10,000) had been raised simply to pay the legal expenses of the defense. This poor publican was worth nothing, but he was the man who was charged with this offense, and this great blending industry was behind him. They wanted to establish the fact that a blended whisky was a Scotch whisky; and that was what this suit was brought for, to show that it was not. I was asked to go over there as a witness, and of course I could not go; but they introduced my report to the Secretary, which the judge promptly ruled out unless they produced me.

Yesterday, after I left the committee, I got this cablegram from London: "Wiley, Agricultural Department, Washington. Whisky defendants convicted." And it is the best news I have had across the ocean, in my opinion, for a long time.

Mr. MANN. Did you not see the account in the newspapers?

Doctor WILEY. Yes, this morning; but this came yesterday.

Now, I want to say, Mr. Chairman, that I have not the least opposition to blended whisky. I will admit, for the sake of argument, that it is better than the straight whisky. I will admit it for the sake of the argument; I do not really think so, but I will say that it is better. That is what the magistrate said. I got the printed proceedings of the trial as they came off every week; they sent out a bulletin, and they had expert witnesses to testify that the blended whisky was less injurious, had less poisonous matter in it than the straight whisky, and the magistrate said: "Well, perhaps that is true. If so, why not say 'This is a blended whisky?' because then you will get the trade."

Mr. RYAN. But that was not the question at issue in that case, was it?

Doctor WILEY. That was the question at issue. The question was whether a spirit that had any Indian-corn spirit in it was a Scotch whisky or an Irish whisky.

Mr. RYAN. That was it?

Doctor WILEY. Yes, sir.

Mr. BARTLETT. It was sold as Scotch or Irish whisky?

Doctor WILEY. It was sold as Scotch or Irish whisky.

Mr. BARTLETT. And it turned out to be a blended whisky.

Mr. RYAN. But the extract of corn is what they objected to?

Doctor WILEY. Yes—spirit made from Indian corn. That covers this whole contention.

Now, I say that that is a business which is perfectly legitimate. I am sorry that our laws are so hard on the man who makes a straight whisky, and so easy on those who make the mixed whisky; because you can not make or sell straight whisky except under a Government stamp, under Government supervision. You can add nothing whatever to it, not even coloring matter, except that when you take it out of bond and sell it you are permitted to reduce it with distilled water under the supervision of Government officials, to proof—that is, half alcohol and half water.

That is the only thing that can be done. Then, if it is in a barrel, it has the double stamp put on it to show that it is whisky right out of the distillery. It can be sold in bottles; you can pay the tax on it and take it out of bond and put it up in any shape you please, or you can, under the law, if you want to, have it bottled in bond. Those are the three forms in which straight whisky can reach you. It can come in barrels, or it can be put up in any kind of a package you please after you pay your tax on it, it makes no difference what; or it can come bottled in bond, as this is. If any of you have never seen a bottle of whisky bottled in bond, this is one.

Mr. RYAN. The fact that it is bottled in bond is no evidence of purity or quality?

Doctor WILEY. It is evidence of quality; it shows that nothing has been added to it except what nature put in the distillate.

Mr. RYAN. Do you believe that when a blender or a rectifier adds anything to whisky he is doing something deleterious to health?

Doctor WILEY. I do not think he intends to. He may do it unwittingly.

Mr. RYAN. The blenders and the wholesale liquor dealers and rectifiers in New York, for instance, are very much disturbed about this. I will state that I have received some seventy or eighty telegrams since last evening in connection with this matter. They fear that this law will show to the public, or attempt to show to the public, or the public will assume, that whisky bottled in bond is the proper thing and will injuriously affect their business, when, as a matter of fact, it is no evidence of quality or purity that it is bottled in bond, as you state now yourself.

Doctor WILEY. Oh, I do not think you have quite quoted me, Mr. Ryan. I said it was a guaranty of quality.

Mr. RYAN. Of quality, yes.

Doctor WILEY. But the word "purity" is used in two senses, unfortunately.

With regard to foods, I never use the word "purity" except in one sense. A pure food is what it is represented to be. It has nothing to do with its wholesomeness at all. A pure food may be unwholesome, as has been testified here. You will see in my manuscript there that in showing what things occur in nature in foods I show that hydrocyanic acid, the most violent poison, occurs in a great many food products. They are pure foods, but they contain poisonous matter.

To come back to our standards of purity, what do they mean? Looking at those standards, do they say anything about wholesomeness? Not one word. We have avoided that absolutely. "Purity" means, what is a pure butter, what is a pure wine? Not whether it is wholesome or not; but what is it? That is all we have tried to fix, and that is all this bill tries to do.

Let me put myself in the place of a consumer. I want a bottle of whisky. Suppose I do not know anything about whisky, practically, as I do not, I am glad to say; I am not a whisky drinker. Officially I was compelled to taste whisky in Scotland; otherwise I would not have discharged the full duty which I was sent to perform. But that is a different thing.

Now, I am not a connoisseur. I do not know but what if you would pour out from this bottle (which I will describe presently) a glass of whisky, or of its contents, whatever it is, and from that bottle another one, I might pronounce this the better. My opinion would not be worth anything because I am not an expert, but I might do it. But that is not the question. It is an ethical question again. It is not a question of wholesomeness. I have never contended that straight whisky is more wholesome than compounded whisky. There is a great deal of testimony to the contrary which I respectfully consider. But I do say that a man is entitled here, as he is under the English law, to get the character, quality, and kind of material he asks for, and if you ask for whisky you ought not to get a bottle of slush, as this is [indicating].

Mr. RYAN. Well, that is not a fair sample of blended whisky.

Doctor WILEY. Yes, it is; taken in the market, obtained in the open market.

Mr. RYAN. But it has no label on it to distinguish it. It does not bear the name of the man who puts it up or any evidence at all of where it came from.

Doctor WILEY. Why, we can tell you where it came from. We have it on the label there.

Mr. RYAN. But that is the label which you added.

Doctor WILEY. Yes; we can tell you where we bought it.

Mr. RYAN. The very label that is on the bottle is evidence that the man, whoever he may be, who bottled it, was ashamed to put his own name on it, owing to the inferiority of the goods, and I do not think it is a fair sample of the blended product.

Doctor WILEY. We bought this from David Beck, 401 First street Hoboken, N. J.

Mr. RYAN. And what proof is it?

Doctor WILEY. It is 66.

Mr. RYAN. You could drink a barrel of that and it would not have any effect on you.

Doctor WILEY. I do not know that that is a fair sample of whisky bottled in bond. I do not know anything about it. I just brought these two samples in because this was the lowest proof of any whisky that we purchased. I brought this as an extreme type, Mr. Ryan.

Mr. RYAN. Yes; that is it.

Doctor WILEY (continuing). Of how much you could do in the way of diluting.

Mr. RYAN. You have been very successful.

Doctor WILEY. Now, what does the customer do when he gets a stamp like that [pointing to whisky bottled in bond]? First, he knows exactly the quantity, because the law says the bottle shall contain so much; it shall be of a certain content. In the second place, he knows exactly the alcoholic strength. The law says you can not bottle whisky in bond unless it is 50 per cent alcohol, 100 proof.

Mr. BARTLETT. That is all he knows, is it not?

Doctor WILEY. No; he knows the date on which it was made.

Mr. BARTLETT. Oh, I mean as to purity and all that sort of thing.

Doctor WILEY. No; he does not know anything about the wholesomeness—not a thing.

Mr. BARTLETT. He does not know how much fusel oil or anything else there is in it?

Doctor WILEY. Not a thing—absolutely nothing; absolutely nothing; but it does give him valuable information.

Mr. RYAN. Suppose a man should go into a store and buy a bottle of a standard brand of blended whisky, put up by some reputable dealer in this country, would that fact in itself be a guaranty that he was getting a good, wholesome article and that nothing was added?

Doctor WILEY. It would be a guaranty that he was getting the article which that firm put up.

Mr. RYAN. Yes.

Doctor WILEY. But nobody knows what that article is unless a chemist examines it, but everybody knows how that article was made.

Mr. RYAN. Are you certain that all whiskies bottled in bond are pure and of good quality?

Doctor WILEY. That is, of that quality?

Mr. RYAN. No, not of that quality; all of them.

Doctor WILEY. I am certain, unless the revenue officer is lax in his duty. I am not responsible for that. We have bought a great many bottled-in-bond whiskies in the open market to test that very point, among other matters, and I am glad you mentioned it here. We bought a great many bottled-in-bond whiskies. I am going to submit his table for publication:

American whiskies—Averages.

[Parts per 100,000.]

	Number of samples.	Alcohol per cent by volume.	Extract.	Ash.	Total acids.	Esters.	Aldehydes.	Furfural.	Fusel oil.	Total rec-ondary products.	Alcohol, fu-sel oil ra-tio.
From United States gaugers:											
Straight old rye	104	56.6	185	8.6	78.5	70.3	13.5	2.3	167	317	300
Straight old bourbon	122	52.6	156	10.2	72.3	52.6	10.8	2.1	140	269	356
Straight new rye	26	50.5	9.8	2.5	9.9	26.8	5	.9	133	174	377
Straight new bourbon	33	50.4	7.8	1.9	11.2	28.4	3.1	.5	128	171	392
Quick aged colored	30	50.3	70.3	4	34.2	23.7	4.2	1	121	178	413
Bought in open market:											
Rye bottled in bond	9	50	193	8.8	92.3	73.2	18.3	2	147	331	341
Bottled in bond	15	49.5	177	9.3	77.7	59.5	16.6	1.5	134	280	378
Distillery bottled	2	42.6	686	18.6	80.3	48.1	12.3	1.4	116	247	431
Rye bottled	67	45.4	572	11.2	48.5	28.1	6.1	1.3	70	143	716
Bourbon bottled	8	44	488	15.4	46.6	24.6	7	1.6	85	163	592
Blended bottled	27	45.9	601	13.3	57.2	34.2	8.7	1.3	77	165	650
Bulk whisky	45	41.1	451	11.1	39.8	13.3	3.5	.9	51	101	977

This is the result of some of our numerous analyses. It gives the number of samples there. These were gotten out of the Government warehouses, from the United States gauger, so that they have the same guarantee that they would otherwise, except that they had not been reduced; but I am coming down to the bottled in bond.

Rye bottled in bond—there the average percentage of alcohol was 49.5. That is pretty close to the requirement. Of course the instrument the gauger uses does not measure any closer than that. It is a mere specific gravity determination.

Mr. RYAN. The requirement is what—50?

Doctor WILEY. Fifty, and that doubtless would read “.50” on his scale.

Mr. RYAN. That chart does not show what brands of whiskies they were?

Doctor WILEY. No; but we have a record of every one. That is an average of all the analyses. That is straight old rye whisky, gotten out of a Government warehouse. We had 109 samples, and you see it was over proof, because it had not been reduced. It was 56. Straight old Bourbon, 122 samples, slightly over proof, 52.6. Straight new rye, just put in, almost exactly proof; it had not time to change much, you see. That shows they put it in right.

Straight new Bourbon, only a short time in bond, 50.4. The quick aged—that is, put in bond and aged artificially, so as to take it out quickly—50.3.

Bottled-in-bond rye, 50.1.

Bottled-in-bond whisky without a name, 49.05.

Mr. RYAN. What is that—“open market” below “bottled in bond” there?

Doctor WILEY. Yes; we bought that in the open market. Of course you can not get those in a bonded warehouse. They are not kept there. They are bought in the open market.

The only point I want to bring before this committee—I do not want to get into this whisky discussion, because I have been through with it so often—

The CHAIRMAN. Doctor, what do you mean by “quickly aged”?

Doctor WILEY. I do not know, sir. That is a process which is used by some of these people; I think the Internal Revenue Bureau allow them to use it in some places, but I understand it is artificial heat. That is what I understand by “quick aging,” where the heat is raised artificially, so that the oxidation takes place more rapidly than it does when it is left in the open.

I will state that I found in Scotland that they sell their whisky almost exclusively to the blenders, except for Scotch consumers. In Scotland they sell directly to Scotch consumers; but they have some kind of an arrangement with the blenders who take their output, so that it is very difficult to get any Scotch whisky anywhere else except in Scotland, and the Scotch whisky when it comes out of Scotland and goes into England and goes into this country is the blended article.

Now, I do not say it is not a better article. I will admit, for the sake of argument, that it is. What I say is that the blenders must be honest with the American people. They must state that it is not a straight whisky; that it is a compound or mixed article, as it is, and I think they are willing to do that. I believe they are.

The CHAIRMAN. Well, Doctor, would it do to simply state that it is a blended article or a mixed article? To be really safe, to be really straight with the people, would it not be necessary to state how it is blended and how it is composed?

Doctor WILEY. Of course all these proprietary people, the medicine people and those who make these whiskies and artificial brandies, all object to that for some reason or other. I do not see why they should. They say they use nothing that is deleterious, and yet they always object to telling what they do use.

Mr. WANGER. Let me read a telegram which may explain this. Here is what a firm says:

We are not in favor of a bill which compels the blender to state upon the labels the formulæ of his blends, to be taken advantage of by his competitor, when the blends contain positively nothing that is unwholesome.

Doctor WILEY. Suppose they contain something that is unwholesome; then is he in favor of it? Would he be in favor of it then?

Mr. WANGER. I understand that the general provision of the law forbids anything that is unwholesome.

Mr. RYAN. And there is nothing that can be put in whisky, is there, that would be unwholesome that would be profitable for the blender?

Doctor WILEY. I do not know about that; I could not say.

Mr. MANN. Well, I do not know; a great deal of whisky is made and sold in the market which is decidedly unwholesome, Doctor. I do not know what it is.

Mr. RYAN. I do not either.

Doctor WILEY. What I think that Congress ought to do is this: Put the straight whisky and the blended whisky on the same plane and supervise the manufacture of the blended article just as they do the straight. Now, that is fair. What is the objection to that? You can not put anything into a straight whisky nor take anything out. The law will not allow you to. Now, let the law supervise the manufacture of the blended article and put them on the same plane.

Mr. RYAN. You would have to have a Government official, then, in every wholesale liquor dealer's warehouse in the country.

Doctor WILEY. Every rectifier's; yes. There are about three or four hundred of them.

The CHAIRMAN. What would be the objection to that?

Mr. RYAN. There is no objection to it. It would simply create a whole lot of new officials, perhaps unnecessarily.

Doctor WILEY. I just want to call the attention of the committee to this matter.

Mr. KENNEDY. Are there only three or four hundred rectifiers in the country?

Doctor WILEY. You can get the exact number from the internal-revenue list. I do not know exactly how many there are, but I know there are several hundred—no more than there are distilleries, I guess.

Mr. KENNEDY. I have received pretty nearly a hundred telegrams from my State within the last twelve hours.

Mr. RYAN. I have fifty or seventy-five from New York City alone. Let me ask you a question along that line: What effect will the enactment of this law have on the rectifiers, or those who blend whisky?

Doctor WILEY. As the bill passed the Senate it would make them

put the word "blended" or "mixed" or "compound" on every bottle.

Mr. RYAN. That is satisfactory to them. Now, then, how about the Hepburn bill, that we now have under consideration? What effect would it have with the word "added" left in the bill, and these other features that they object to?

Doctor WILEY. It would require them to reveal the formula, so far as the necessities of executing the law are concerned, and no more; that is, it would require them to state, if they used any injurious substances, what they were, and in what quantities, but not how they mixed their goods.

Mr. BARTLETT. The words in the Hepburn bill are "added and poisonous substances."

Doctor WILEY. It means "injurious," I suppose.

Mr. BARTLETT. It says "poisonous."

Mr. MANN. Well, that remains in the Senate bill.

Mr. WANGER. Do you regard the provision of the Senate bill as sufficient?

Doctor WILEY. I would hardly like to express an opinion upon that point, because I have not looked into this question at all. It is a matter to which I have not given much consideration. I haven't had time to read the bill as it passed the Senate. What I want is that every food product shall be put on exactly the same plane in this bill.

Mr. RYAN. That is what we all want.

Doctor WILEY. Yes.

Mr. RYAN. We do not want to unnecessarily attack any particular industry.

Doctor WILEY. If straight whisky can not be made except under the supervision of the Government, then no kind of whisky ought to be made except under the supervision of the Government. That is ethics. Why should the man who wants to mix a drink, and presumably, as the law says, make it spurious—because the law says it is spurious—be allowed favors which the man who makes the real article is not allowed?

For instance, suppose a man who is packing sweet corn wanted to put up half green peas and half sweet potatoes. The sweet potatoes are perfectly wholesome. Suppose he should want to pack the goods under the name of sweet corn, sweet corn and sweet potatoes, half and half. The law says to the man that packs peas, "You can not put anything in that can but peas;" but if you mix them the law, as far as rectifiers are concerned, says, "Put anything in you please." That is the principle.

Now, that is not right. As long as you pack a pure product the law requires it to be such; but if you make a mixture, make it anything. That is the way the law is now.

Instead of the present law discriminating in favor of straight whisky, the law as it stands to-day discriminates altogether the other way. But I think it is the duty of the Ways and Means Committee to settle that question of how whisky should be made, and there is a bill before that committee now supervising the manufacture of blended whiskies—a very good bill, which I hope will pass.

Mr. ESCR. Mr. Hough's amendment, as I recollect, was to strike out the word "added." Have you anything to say about that?

Doctor WILEY. I can tell you all about that, and the strenuous effort that was made to do it. It is well known that a straight whisky has more fusel oil in it than a mixture of part whisky and part neutral spirit. That is a self-evident proposition. That is shown in the analyses. That is one of the points brought out here. Now, just look at that last column. There is straight whisky. It has 1 part of secondary products—that is, the fusel oils and everything—to 300 parts of ethyl alcohol. Then just drop down to the last one, the bulk whisky, which we buy in the open market, of which we secured 45 samples; they have 1 part to 977. That shows that it could not be possibly more than one-third whisky and two-thirds neutral spirits.

Mr. RYAN. There was one-third of distilled water added in those cases, was there not?

Doctor WILEY. No; we calculated it all to the same standard of alcohol.

Mr. MANN. It is cologne whisky?

Doctor WILEY. Pure cologne whisky, or, rather, proof spirits; it is calculated to proof. That is half water and half alcohol, but it is all calculated the same; the water is eliminated from the original sample.

Mr. MANN. Is that ethyl alcohol?

Doctor WILEY. Ethyl alcohol.

Mr. MANN. That is pure ethyl alcohol, is it?

Doctor WILEY. Yes; that is pure ethyl alcohol for calculation and comparison. Now, that shows you in a word the whisky that you buy in bulk in the market. If you go and draw it from a barrel, 45 samples bought at random could not contain more than one-third whisky, according to that showing. Now, they may be better than the other kind. I am not saying they are not better, but I am saying that it is not right to let that product be sold to the public in bottles of nobody knows what size, nobody knows what proof, nobody knows what is in it at all.

Mr. KENNEDY. These blenders, then, do not pay the same revenue as the others?

Doctor WILEY. Oh, yes; Uncle Sam looks to that very closely. Every barrel of alcohol that goes into their establishment is gauged, and every barrel that comes out is gauged, so as to see that they have used it all in their business and have not done anything else with it; but Uncle Sam says nothing about the strength of what comes out. You can make it anything; but if you sell straight whisky you must have it of a certain strength.

Mr. KENNEDY. Then they can water their blended goods as much as they please?

Doctor WILEY. Ad libitum. There is no protection to the consumer against anything the blender wants to do.

I know that most of the blenders are most honorable men, and make a good article of liquor, which I do not drink myself in the small quantities that I do drink, because when you once get to drink the straight whisky it is so much better, has so much more aroma, and is so much better in every way that nobody wants anything else; but those who do want something else ought to have it. There is no objection to the making of it. Now, you take these great blends that are on the market—they are very smooth, nice drinks, although they have not the aroma and the flavor of the straight whisky, but they

are very pleasant—such blends as Wilson and Hunter, and whiskies of that kind.

Mr. RYAN. They are not so strong; they are lower proof than the straight whiskies?

Doctor WILEY. They are probably lower proof; but nearly everybody adds water to his whisky anyway. You do not drink that kind of whisky straight. At least, I could not.

Mr. BARTLETT. That bottle there is Overholt whisky. That is straight whisky?

Doctor WILEY. That is straight whisky; and when you buy that you know what you are getting. You are getting a certain quantity and a certain strength, made at a certain date. That was made in 1896, ten years ago, and the date it was bottled is given there.

Mr. TOWNSEND. What, in short, is it that you think ought to go into the bill on that subject?

Doctor WILEY. I think the bill as it passed the Senate is a very good bill on that subject. I have always told Mr. Hough that, as far as I am concerned, if their people would put on their bottles the fact that it was a mixture or compounded article I would be satisfied.

Mr. BARTLETT. Blended?

Doctor WILEY. Well, I object to the word "blended," because the only official definition of the word "blend" as applied to liquors is in the English regulations, the excise regulations. There they define a blend in its proper sense—a mixture of two whiskies. That kind of a blend, of course, would be a straight whisky, only it would have two kinds of whisky in it. But when you use neutral spirit—and that is what this English court decided—it is not whisky at all. Nobody has ever claimed that it is, except Mr. Hough, who says that whisky is ethyl alcohol and water plus a flavor. He admits it must have a flavor. But the English courts have decided in this decision that if you put anything into a Scotch whisky that is not Scotch whisky it can not be sold as Scotch whisky in England.

Mr. BARTLETT. Whisky that is put in bond is always white when it is first produced, is it not?

Doctor WILEY. Altogether; yes, sir.

Mr. BARTLETT. Now, when it is bottled, that whisky is not white; it is colored?

Doctor WILEY. It is colored; yes, sir.

Mr. BARTLETT. Now, some of those whiskies have a very peculiar flavor. Take, for instance, this old Jordan whisky—I do not know anything about it—that is bottled in bond?

Doctor WILEY. Yes.

Mr. BARTLETT. And it is said to be very fine whisky; but it has a very peculiar flavor and color to it.

Doctor WILEY. The cask often flavors a whisky. If you put it in fresh wood you get one flavor and a low color. If you put it in charred wood you get a different flavor and a deeper color. The Scotch are very fond of using sherry wood casks which have contained sherry. They told me there last year that they were paying 50 shillings for an empty sherry cask.

Mr. RYAN. Scotch whisky has not much color to it.

Doctor WILEY. Well, the Scotch allow the coloring of whisky in bond with the caramel.

Mr. RYAN. Doctor, with regard to the bill we are now considering—the Hepburn bill—Mr. Hough asks that the word “added” be struck out from the bill where it occurs, and also the words “provided that the same shall be labeled, branded, or tagged, so as to show the character and constituents thereof.”

Doctor WILEY. Yes.

Mr. RYAN. He asks that those words also be struck out in the Hepburn bill; and that would practically make this bill conform with the bill as it passed the Senate, and conform with your idea?

Mr. MANN. They did not strike out the word “added.”

Mr. RYAN. No; they did not strike out the word “added;” but they struck out your modified bill. Now, I want to know if it would have the same effect or operation as by striking out the word “added,” and this proviso in this bill? I am asking Doctor Wiley about that.

Mr. MANN. The Senate bill provides that a blended or rectified whisky may pass if it bears the words “blended,” “rectified,” or “mixed.”

Mr. RYAN. Yes.

Mr. MANN. Now, I take it that that means nothing, because everybody supposes that whisky is rectified more or less, ordinarily.

Doctor WILEY. I should object to two of those words very seriously, because “rectified” means distilled and purified, not mixed with something else, and “blended,” in my opinion, means a mixture of two things of the same kind.

Mr. BARTLETT. Well, the word “rectified” here in the internal-revenue law has a technical meaning. It is used by men who are blenders and rectifiers.

Doctor WILEY. But the law explains how; it first describes what a rectifier is.

Mr. BARTLETT. Yes.

Doctor WILEY. A rectifier is one who purifies whisky. Then it says that anyone who, without rectifying, mixes any spirits to make a spurious imitation of whisky, gin, or brandy shall be deemed to be a rectifier, and must take out a rectifier’s license. That is simply to determine how much license he shall pay.

Mr. RYAN. The word “blended” would not be objectionable, then?

Doctor WILEY. It would not be objectionable if they used two whiskies; but it would be objectionable to say that they are blended whiskies when they are made of one whisky and one something else. That can not be a blend, actually; because the word—

Mr. MANN. Doctor, how far are you familiar with the processes of making the whisky which is ordinarily offered in the market?

Doctor WILEY. This blended whisky?

Mr. MANN. The kind that is sold in the saloons?

Doctor WILEY. Oh, in the saloons—why, nobody will ever let you in a blending establishment. I could never get into a blending establishment in this country—not for love nor money.

Mr. MANN. I am told by a man who ought to know that from 95 to 98 per cent of the whisky which is sold in the ordinary whisky shop is new ethyl alcohol, only a few days or a few weeks or a few months old, depending merely upon the happening of it, colored and flavored with perhaps some other little ingredients added, including water, and turned over to the saloons, and that that is practically the only kind of whisky you can buy in the saloons to-day.

Doctor WILEY. Mr. Hough testified before the House Committee on Agriculture that nearly all the whisky sold in this country was what is known as the blended or rectified article, and that only a small per cent is really straight whisky; and that is borne out pretty well by the figures of the Internal Revenue Department.

I want to say to you, Mr. Chairman and gentlemen, that in New Orleans, last winter, I was very anxious to go into the distillery there where they use molasses, because I have been interested in the sugar industry for a great many years, and especially in the progress of the industry in the South, and I knew that the utilization of molasses for alcohol making would be a great boon to the sugar makers, as affording them a market. I applied first personally to the large distillery there, and they said no; unfortunately they were not allowed to let me go into the distillery.

Mind you, this was not the rectifying establishment, but the distillery. Then I got a very distinguished citizen of New Orleans to go with me, and then they said: "Well, of course we would like to accommodate you, but we will have to telegraph to New York." "Well," I said, "I do not know that I can stay long enough to get an answer from New York, but I would like to go in." Well, he said he thought he could not let me do it. "Well, now," I said, "I will tell you what I could do, but I would not like to do it. I can telegraph to the Secretary of Agriculture and ask him to ask the Secretary of the Treasury to send me in there with the excise officer, and I can get into your shop in two-hours from now by authority of the Secretary of the Treasury, but, I say, I would rather go in with your permission." He said: "Well, all right; I guess I had better take you in." So he did, very nicely. He was only obeying his orders; it was no fault of this man; and he showed me everything there, and I found it most interesting. I was very glad indeed that I went in there where the distillation takes place.

They use the molasses from the plantations around there, ferment it as they do for making rum (not the same number of days, but in the same way), and then they put it through the rectifying columns and make pure alcohol of it. Then they send it to the rectifying establishment. The distillation is very simple. I was shown some of the product, and the spirit was very fine, pure, neutral spirit. Then this man said: "I will take you down to our rectifying establishment. I can not take you in, but I can show you the product of it." So I went with him to the rectifying establishment, where he sends that pure spirit, and he went to a cask and drew off a little whisky and asked me to smell it and taste it. It was a pretty smooth kind of a drink. He said: "That is the finest Bourbon whisky produced in the United States." He said: "It was sent down from the distillery this morning and has just been made." He said: "I am putting it into a barrel now." And I said: "Let me see it." He was putting it into a barrel marked "Pure Bourbon whisky," made out of molasses and some flavor—I do not know what—that he was using.

That is your blender and rectifier.

Mr. BARTLETT. If you should require, under Government supervision, that the blender or rectifier should put on the package the date of putting it into bond—

Doctor WILEY. If he did that under the supervision of the United States he could not put it in such a package. That is all I ask—honesty.

Now I am going to make you some whisky younger than that.

Mr. MANN. Doctor, before you make the whisky let me ask this question: The whisky that is usually made now by, say, the United States Distilling Company (which I suppose is the largest concern) is what is called "high wines" in the market?

Doctor WILEY. Yes, sir.

Mr. MANN. That is almost pure ethyl alcohol, is it not?

Doctor WILEY. Yes, sir.

Mr. MANN. That is the basis of the blended whisky?

Doctor WILEY. Yes, sir.

Mr. MANN. It is not whisky?

Doctor WILEY. No.

Mr. MANN. It is the main product of the distillation of corn today?

Doctor WILEY. It is practically pure alcohol.

Mr. MANN. Pure ethyl alcohol?

Doctor WILEY. Pure ethyl alcohol.

Mr. MANN. And neutral spirits, almost?

Doctor WILEY. Entirely neutral. They usually use perfectly neutral spirits, they prefer it. I will tell you how they make new whisky and I will make you some. I do not know, of course, all the ingredients.

Mr. RYAN. Is not that alcohol that Mr. Mann talks of the basis of straight whiskies as well as blended?

Doctor WILEY. Yes; but the Lord put it in straight whiskies.

Mr. RYAN. I say, it is the same thing?

Mr. MANN. But straight whisky is not the pure ethyl alcohol. Straight whisky is left with something in addition to the pure alcohol; and then when put in the cask by age it does accumulate a flavor and an odor, etc., that we want in whisky?

Doctor WILEY. Yes.

Mr. MANN. Or that people want.

Mr. RYAN. But there is nothing added, I mean, excepting distilled water?

Mr. MANN. Oh, no; there is nothing added excepting time and chemical action.

Doctor WILEY. Let me illustrate that, gentlemen. You take a bottle of brandy and a bottle of whisky—they both contain the same amount of ethyl alcohol. They both contain the same amount of water. Now, what is the difference?

Mr. MANN. That is what I tried to find out, Doctor.

Doctor WILEY. We can tell you pretty well the difference chemically. Those fine flavors, though, you can not measure by chemistry. There is another one of those things that are immeasurably small, infinitely small, almost. That which gives odor or flavor can not always be measured. You know the old adage to the effect that "you may break, you may shatter the vase if you will, but the scent of the roses will hang round it still." Nobody can imitate exactly what nature does, as I said here yesterday. You can analyze that whisky, you can find out how much fusel oil is in it, how much acid, how much aldehyde, how much furfural, how much ether; how much

sugar or extract, put them altogether, and you will make something that looks like it and tastes like it to a certain extent; but when you come right down to the thing itself it is not it any more than an artificial mineral water is a natural mineral water, any more than an artificial champagne is a natural champagne.

I will tell you the trouble in this country. Nobody knows anything about straight whisky; and when a man asks another man what he likes, he finds that he likes what he is drinking. I will give you an illustration: Four or five years ago I was put on the house committee of the Cosmos Club, and I found nothing there but mixed whiskies. I did not object to them, but I thought we would try some of the other kind; so I got a barrel of whisky out of bond, 7 years old. The first time they tasted it the fellows said: "Why, that is an adulterated article; what is the matter with this? That is not whisky." To-day there is not a glass of blended whisky used in that club. They will not have the blended article. It is insipid; it is tasteless; it has no character. It is like one of those beautiful painted forms that the milliner puts up and puts a gown on compared with a real girl. [Laughter.] That is just about the principle.

Mr. ESCH. Your illustration appeals to us.

Mr. MANN. I wish you would tell me what beading whisky is.

Doctor WILEY. We will show you; we have the beading oil here.

Mr. MANN. I wish you would tell us about that. There has been so much ignorance displayed before this committee about beading whisky that I think we ought to know about it before we go into the House.

Doctor WILEY. If you ask me the composition of the beading oil, I can not tell you.

Mr. MANN. I do not mean that.

Doctor WILEY. But it is an oil which they get from the refuse of the mills that make the rectified spirit. All secondary products, you know, are taken out, and they take those to the chemist, and he works up out of those secondary products the flavors which nature puts in; but they are not nature's flavors after all—some of them, but not all.

I have here pure ethyl alcohol first. That is the basis. I am going to make a pure mixed whisky. I am not going to put any real whisky in it at all.

Now, what have you got in there?

Doctor BIGELOW. I am just putting in the caramel.

Doctor WILEY. This is the caramel, the coloring matter dissolved in water, is it?

Doctor BIGELOW. It is dissolved—I poured in some of the mixture.

Doctor WILEY. It is dissolved in part of the mixture itself. Now, that is proof, is it?

Doctor BIGELOW. That is proof.

Doctor WILEY. That is a little better than the ordinary blended whisky, because it is stronger. That is proof—50 per cent alcohol, 50 per cent water, and the coloring added.

Now, we have aged that whisky. It is 10 years old.

The CHAIRMAN. Now, that is ethyl alcohol?

Doctor WILEY. That is ethyl alcohol plus the caramel. It is aged now, 14 years old. Now I am going to put in the flavor. We

have a full collection of every flavor, I guess, that was ever made, and a full description of how they are to be used by the manufacturers.

Mr. RYAN. And that will make proof whisky?

Doctor WILEY. This will make a proof beverage which I would not call whisky, but which some people would. I am a rectifier now; I have taken out my license. I am doing what the Government gets \$500 a year for another man's privilege of doing; but do not report me to Mr. Yerkes, because he will send me to the penitentiary if you do. Now, what have you put in as a flavor?

Doctor BIGELOW. Scotch.

Doctor WILEY. This is Scotch—pretty good Scotch, too. Smell it. Taste it—it is perfectly harmless.

Mr. RYAN. Scotch whisky is not that color, is it?

Doctor WILEY. Yes; it has a pretty good color.

Mr. KENNEDY. Some people claim that no liquor is harmless.

Mr. MANN. It has not the right flavor to me, Doctor.

Doctor WILEY. It has not the right flavor?

Mr. MANN. No.

Doctor WILEY. Well, we have made it according to the directions. I am not an expert blender. I can not make a blend like a real blender, but I can only go through the motions. I can not do that any more than I could make a suit of clothes that would fit you.

Mr. RYAN. That is what you would call 100 proof, is it not?

Doctor WILEY. Yes, sir.

Mr. RYAN. Would it not be better if it was less than that?

Doctor WILEY. You mean more wholesome?

Mr. RYAN. Yes.

Doctor WILEY. I think so. There is no objection to adding water to it before you drink it.

This is Bourbon whisky, made out of the same stock, but with a different flavor, and according to the directions. There [indicating book] are all the recipes which are used.

Now, I do not want this committee to do anything which will interfere with this business, because a great many people prefer this kind of goods, and they ought to have them.

Mr. RYAN. This smells like coal tar to me, Doctor.

Doctor WILEY. That is sugar.

Mr. RYAN. Is it?

Doctor WILEY. Oh, yes; that is burnt sugar. That may be; the artificial Scotch flavor may be distilled from coal. I do not know.

I would like to tell the committee how the Scotch flavor is given, if you do not know or if you would like to hear me.

The flavor given Scotch whisky, the smoky flavor, comes from the way they dry the malt. Every Scotch distiller makes his own malt, and they all dry it the same way. They dry it over a peculiar kind of peat, which is grown up among the heather, and has the aromatic principles of the heather. That peat is cut and cured as carefully as you would cure a cheese, and is cured for two years; and it ferments and develops a lot of beautiful flavors in the fermentation. When they dry the malt they put it on a floor upstairs pierced full of small holes. Below is a furnace. On that furnace they burn this peat; and with the warmth these aromatic substances which have been produced by the fermentation and also by the combustion rise up with the smoke, go through the malt, are absorbed by the malt, and

then the rest of it goes out through the roof. Now, those aromatic principles stick to the whisky through all the distillation. They come from the malt. That is the Scotch flavor, and I think it is a delicious flavor when you have the real flavor.

Now, this is rye. Now, make a brandy and that will be enough. We will make Scotch and Bourbon and rye and brandy all out of the same bottle; and the rectifier, if he wants to, can label it "fourteen years old" or "twelve years old"—absolutely anything he pleases. There is no conflict with any United States law. Of course there would be with common law.

Mr. RYAN. The consumer, the fellow that drinks it, that gets a drink of it, does not know what is on the barrel, does he?

Doctor WILEY. No; that is so.

Now, that is brandy, gentlemen. Of course these are not good blends. I am not claiming that they are. I am not an expert blender; and, moreover, an expert blender always uses some whisky.

Here is the aging oil. Some of these things cost \$5 a pound. We have endeavored to get every flavoring matter that is on the market, and I think we have a collection of almost everything that has ever been used for flavoring artificial whiskies. I am told that we paid \$70 a pound for one Cognac oil.

Mr. MANN. This is beading oil, is it? Now, in the Senate, when that question was first asked over there about what beading whisky was, they said it was like champagne; so I suppose they never had drank any whisky.

Doctor WILEY. Oh, no; the beading is a little material which forms a bright, oily particle on the part of the liquor, which sparkles; but it is not carbon dioxide at all, like champagne is.

Mr. RYAN. Has age any effect on that?

Doctor WILEY. An old straight whisky has a great deal more of a beading oil than a young whisky. Now, there is another objection to this blending process that I do not think has been referred to here before. They use as young a whisky as they can, because it has more flavor, and it takes less of it. It is not at all uncommon in Scotland to run the whiskies right out of the still to the bonded warehouse, have them gauged, and the tax paid, and send them right up to the blenders; and in this country there is no limit on the age of the whisky which they shall use. Now, that ought to be limited by law. The blender ought not to be allowed to mix a whisky less than 4 years old, because it takes that time—

The CHAIRMAN. What is the effect of time upon whisky?

Doctor WILEY. The changes in whisky are very minute. I was formerly of the opinion, Mr. Chairman (which was held by chemists generally), that the aging of whisky consisted in the oxidation of the so-called fusel oils or secondary alcohols. On the contrary, there is more fusel oil in an old whisky in proportion to the ethyl alcohol than there is in the new, because it disappears more slowly during the process of aging; so it is not the oxidation of the fusel oils which makes the difference between new and old whisky. There is an increase of the acids in an old whisky. They are always more acid, slightly, than the new whisky. There is an increase in the aromatic ethers. That is the principal difference in the amount of acid and in the amount of aromatic ethers; and those aromatic

ethers are the products of oxidation in the barrel of the alcohol itself and its secondary products. I would not say the alcohol itself alone, because this flavor never develops in pure alcohol. That shows that it does not come from pure alcohol alone. It is probably the oxidation of the secondary products.

Mr. MANN. What do you mean? You do not mean the secondary products of alcohol?

Doctor WILEY. No; I mean when you ferment a grain like malt, or a mixture of malt and grain, when the sugar is fermented ethyl alcohol is not the only thing that is formed. There are other alcohols formed. Glycerin is formed; the essential oils are developed and all the things which are peculiar to that particular grain.

Mr. RYAN. The more you try to get out of the grain, the greater amount, the more of those other things?

Doctor WILEY. Well, I could not say as to that, but I do know that they are formed—they are congeners with the ethyl alcohol and are just as much natural to whisky as ethyl alcohol is itself.

Mr. MANN. So that in distilled whisky, natural whisky, there are other things besides alcohol?

Doctor WILEY. That is what makes it whisky.

Mr. MANN. Essential oils, you say?

Doctor WILEY. Essential oils, higher alcohols, ethers, acids, and so on.

Mr. MANN. Well, there is ethyl alcohol?

Doctor WILEY. Yes, sir.

Mr. MANN. There are other articles which we call fusel oil?

Doctor WILEY. Yes; a group of them.

Mr. MANN. Now, there are other oils besides that?

Doctor WILEY. Yes; there are essential oils, such as the flavoring oils that exist in plants.

Mr. MANN. And does anyone know exactly what chemical changes take place in the course of time in those oils?

Doctor WILEY. Yes; we have in our studies pointed out on that chart the principal chemical changes that take place.

Mr. MANN. I mean as to flavor, taste.

Doctor WILEY. No; you can not measure that change in the ether, in the delicate amount of the ether, or which ether it is that gives the flavor. That is one of those immeasurably small changes.

Mr. RYAN. You are bound to get all those things in greater proportionate quantities in the whisky bottled in bond than you are in the blended whisky, of course?

Doctor WILEY. When you mix with neutral spirit you diminish those properties just in proportion as you add neutral spirit.

Mr. RYAN. Are those properties injurious?

Doctor WILEY. No, sir.

Mr. RYAN. The fusel oils, and all that sort of thing?

Doctor WILEY. No, sir; they are not injurious in the sense that ethyl alcohol itself is injurious.

Mr. RYAN. I have always understood that fusel oil was a terrible thing.

Doctor WILEY. So have I. I was just going to say that I was brought up to believe that fusel oil was a veritable *bête noir*; it was a thing you ought not to meet in the dark at least; I have always believed it until Doctor Schidrowitz in London first called my atten-

tion to it. He said: "Why, the common idea that fusel oil oxidizes is erroneous." I said: "How do you know?" He said: "I have tried it." And that set me to work, and we have gotten about a thousand samples of whiskies of known origin, purchased in the open market, or rather those of known origin were about 500 out of the thousand. There were about 500 whiskies whose histories we knew, and we also got an equal amount (that is, 250 old and 250 new) of the same kind from the distillery; not made at the same time, but of the same kind of whisky, made at the same distillery. We analyzed these new whiskies and the old whiskies which came out of the same distillery, and there we get a comparison of what the changes are.

Now what happens when whisky goes into age in a bonded warehouse?

In the first place, in this country where they char their barrels, it gets a very deep color. If the barrel is not charred the color is lighter. I believe that in Tennessee they do not char their barrels, and the Tennessee whisky is very much lighter in color.

That is the first change.

The second step is that the alcohol extracts certain matters from the wood in small quantities, so that while pure whisky has nothing of a solid residue—if you take some of this now you will find a lot of stuff taken from the burnt wood, a kind of a caramel. It is not exactly a caramel either. Then there are some other substances which the alcohol extracts from the wood, some little tannin, perhaps, and other things which it extracts from the wood. That is the next change that takes place.

Then there is a gradual oxidation going on in which ethers are formed, and that is where the flavor and odor come.

Now, in that old whisky, you see, there are 70 parts of ester, which is a compound ether—70.3 parts of esters to 100,000 parts of proof alcohol.

The next, which is an old straight whisky, is 52 parts, and then the next, which is straight old rye and straight old Bourbon. The next, which is a straight new rye, has only 26 parts. There you see where the principal change takes place. Mr. Chairman; it is in the formation of those aromatic ethers. That is the principal chemical change that takes place in aging.

Then we go below that. Point out the straight new Bourbon, will you? That is 28 parts only. Now, the next one, quick aging, 21. Now, you see that "quick-aging" does not age. Note that. It brings the color out, that is all, to heat a whisky in the barrel; but it does not change it otherwise. There is no more ether in a quick-aged whisky than in a new whisky.

Now, take the next one—bottled in bond, 73. There you get your aromatic ethers again. The next one—whisky of all kinds, ordinary whisky without a name, 53; not so good. The next one—bottled rye, not put in bottle in bond, 28, you see, 24; that has got no more ether in it than the new whisky. That is what your so-called "blended whisky" is. It has no more ether in it than a new whisky, because they dilute it with another alcohol that has no ether in it at all. So you get, practically, in a blended whisky a new whisky in so far as the ethers are concerned: that is what you get.

Mr. WANGER. That last figure, for bulk whisky, seems to be only 13.

Doctor WILEY. Well, the bulk whisky is the worst of all. That is what comes in barrels, and is sold in cheap saloons at 5 cents a drink. That is a good deal like this [indicating]. That is a very good illustration of bulk whisky in this bottle, very low in proof; but that is all calculated to the same percentage of alcohol.

I think all the law ought to require is that that kind of whisky which does not develop any ether, does not improve any in aging, ought at least to be notified to the consumer so that he may know what he is getting. Then, if he likes it better than this, it is cheaper and of course he can take it.

Now, I will tell you what was brought out on that Scotch trial. It was brought out that the spirit made from Indian corn is sold to the so-called "blender" for 1s. 6d. a gallon without tax, you know—still in bond. That is sold for 1s. 6d. Now, we have just bought a barrel of real Scotch whisky for the Cosmos Club, made in 1891. That is sixteen years old, and we paid, in the north of Scotland, near Elgin, where this was made, 12s. 6d. a gallon for it, without tax. Of course, coming out of the country they do not have a tax to pay there, but they will have to pay it when it comes here. That is the difference in price. That high wine of which you spoke has been sold in this country in the last few months for 13 cents a proof gallon.

Mr. MANN. That is less the tax, of course?

Doctor WILEY. Without tax. That is, you will see it quoted in the Cincinnati markets. I have not looked at it lately, but a few months ago it sold at \$1.23, of which \$1.10 is tax. So that it is really bringing 13 cents a gallon.

Mr. WANGER. And you paid 15 shillings?

Doctor WILEY. We paid 12s. 6d. for the real article; and you can not to-day get an old whisky that is of any age in this country for less than \$2 and \$3 and \$4 a gallon, because it costs money to hold your whisky, and then there is a lot of it that escapes.

Now, is there any ethics about this, gentlemen? That is the question here. It is not a question of health. Is there any ethics in permitting a body of men to make whisky out of high wines at 13 cents a gallon and so selling them that the man who is in the business of making straight whisky has got to sell to the so-called "blender" or go out of business? That is just the condition of affairs to-day.

The standards committee advises the Secretary of Agriculture to say that wine is the product of the fermentation of sound ripe grapes. Is not that ethical? What is wine if it is not that? That is wine the world over. Then we define the different kinds of wine after that and give standards of purity for them. Among other things, we define a wine which has its alcoholic strength increased by the addition of sugar before fermentation. That is a perfectly legitimate process. Nobody objects to it. But if you take a grape juice—

Mr. MANN. Let me ask you just there, Doctor, as to that specific case. I suppose you know what the case is?

Doctor WILEY. I know exactly what the case is.

Mr. MANN. Yes. Does this bill in any way, in your judgment, interfere with such a case as that of Missouri wine, where the strength of the wine is increased with the use of sugar?

Doctor WILEY. Why, certainly not; certainly not. If a man goes into a store and asks for wine they ought to sell him the pure fermented juice of the grape or they ought to say: "We have not that, but we have a good sweet wine; we have a wine made partly of sugar." The law does not forbid his selling it. On the contrary, we fix a standard of purity for it.

Mr. RYAN. It declares that they must use a label different from other wines which do not require so much sugar, does it not?

Doctor WILEY. No; the standard says nothing about labels.

Mr. RYAN. You could tell Missouri wine, under the standard which is proposed, from Ohio or New York or California wine?

Doctor WILEY. Usually it has a character, like other wines, due to the country where it is produced—that is, if it is real wine it does.

Mr. RYAN. Would you know it by the label?

Doctor WILEY. Yes; they usually put the label of the place on it.

Mr. RYAN. I understand that; but I mean by reason of this bill.

Doctor WILEY. Oh, I do not know that I could do that.

Mr. MANN. Would this bill require the wine made in Missouri, which has added to it sugar, to have anything on the label showing that sugar was added to the grape juice in order to make wine?

Doctor WILEY. Why, this bill would require that that product should be in some way designated as having been made partly of sugar, and it ought to do it.

Mr. MANN. I am not talking about that. I told Mr. Clark it would not.

The CHAIRMAN. I want to call your attention, Doctor Wiley, to a letter that was sent me by the Speaker from Mr. H. B. Myers. He criticises the bill known as the Heyburn bill or the Hepburn bill, and says:

"Congressman Lorimer's bill, if incorporated into law, would be inexpensive in operation, requiring only the machinery already in operation in the States, whereas the Heyburn or Hepburn bills, should either of them become a law, to be effective would require, in my estimation, the following list of expense or appropriations, to wit:

"Fifty laboratories in 50 States or districts, for equipment, rent, chemicals, apparatus, and appliances, based on expenses now in operation in various States, each at \$5,000 per annum, \$250,000.

"Ten expert inspectors in each district, at \$15,000 per annum; 50 districts, \$750,000.

"Traveling expenses of inspectors, estimated, \$250,000.

"Expense of purchasing samples by inspectors, per annum, estimated, \$100,000.

"For salary of two chemists (two chemists for every two inspectors), \$250,000."

There he makes a total of \$1,600,000 necessary to carry on in those particulars the operations under either of these proposed laws. What do you say to those estimates?

Doctor WILEY. Well, Mr. Chairman, I do not know that I can say anything to a proposition like that. No one can, of course, tell exactly the increased expense respecting the execution of this law. As far as the chemical work is concerned, I can assure you that there will be very little, if any, increase in the expenditure.

We have a corps of chemists now which can take charge of all this work; and more than that, the law associates four great depart-

ments—that is, the Heyburn bill as it has passed the Senate; a very good bill, I think—so that they could utilize the machinery of those departments without creating new machinery. That was the object of that. I do not believe it would take one additional inspector. I do not see any place where an inspector could do anything. I see no occasion to use one for any purpose.

The CHAIRMAN. In addition to the present machinery?

Doctor WILEY. The present machinery of those four great departments can care for this law. Of course there will be some little expense. I was talking with the Secretary of Agriculture. He asked me what I thought would be the additional expense of carrying out this law and making it effective, and I told him roughly about \$150,000 or \$200,000 to pay every expense of every kind; and I think that is a very large estimate of what the cost would be. More than that, it would be the rarest thing in the world that any suit would ever be brought under this law. Just the moment this law is passed the business men of this country, practically all of whom are law-abiding citizens, are not going into the jaws of the law. None of them that knows anything about the law will want to do that. As soon as the law is understood and fully appreciated they will all conform to it.

We have never had a case in court in the execution of the law against foreign foods—never one. People are perfectly willing, as soon as they know the law, to conform to it, and the result is that to-day there is not a package of adulterated olive oil coming into this country, to my knowledge. And so with a great many other things. Moral suasion does it, and that will be the case with this law. I know there is a great objection to this law for fear that its object is to fill this country with revenue agents, you might say, and inspectors. I have talked a great deal with the Secretary of Agriculture about that, and his idea—he may have gathered it from me; I confess that I may have told him what I thought before he told me what he thought—is that the way to enforce this law is in collaboration with the State and national authorities as they exist to-day, and if they find in their State any violation of the law which they can not reach, let us know, instead of filling the country with our own inspectors. I do not think we need one. That is my view of that statement.

Mr. MANN. Doctor, is that all on that point?

Doctor WILEY. Yes; that is all I care to say about that.

Mr. MANN. You have referred here to bottling in bond, and there has been a good deal said about the ethical proposition. I would like to ask you this: Is it not just as necessary from the ethical point of view to require manufacturers to put the contents on their packages in bottles as it is the quality of the goods? I understand it to be the fact that in the case of nearly all goods that are now put up in packages the manufacturers have quit putting on the amount of the article contained, because they are reducing the amount, and whereas they purport to sell a 2-pound or a 1-pound package they put in 30 ounces or 14 ounces, or something of that kind.

Doctor WILEY. Of course, there is nothing in this law about false weights or measures, except as the laws already exist with regard to that. But I can see no objection to any manufacturer placing upon his package the weight or volume of it and, if it is a compounded article, a statement of what it contains. He need not reveal his

formula for mixing; nobody asks him to do that; but what is it? That is what the consumer ought to know, and some of the patent-medicine people are doing that to-day.

Mr. MANN. Should he not also put upon his package how much there is in it?

Doctor WILEY. Certainly.

Mr. MANN. Whether it is a quart or a pound or an ounce?

Doctor WILEY. How much there is of it; yes.

Mr. MANN. And what it is, so that the consumer will know.

Mr. RYAN. On that line, Doctor Wiley, what effect, in your opinion, would the enactment of either the Heyburn or the Hepburn bill have on the preparation used by these Keeley institutes?

Doctor WILEY. I do not know; I never have looked into that at all. If the Keeley-institute remedy is a genuine remedy, they can protect it absolutely by trade-mark.

Mr. RYAN. What do you mean by "a genuine remedy?"

Doctor WILEY. If it is a remedy that cures; and if it is not one that cures I do not think that they ought to have any great claim, if it is fraudulent. I do not know a thing about it, mind you. If it is a genuine remedy that effects its cure, they need have no fear of its being known.

Mr. MANN. Doctor, if you drank much of this liquor you have made you would soon have to find out something about it. [Laughter.]

Doctor WILEY. Now, that is my view of this matter, gentlemen.

Now, I want to go back to that wine matter. I have been thinking about that, and I think I am wrong. Unless the wine in some way controverts this law—and I am thinking; I do not see how it does, because it makes no false claim; it simply is sold as this beverage, without any claims for it at all—I do not believe there is anything in the law which would require a specific label.

Mr. MANN. The sugar is not put in the wine.

Doctor WILEY. No. That is the reason I have revised my statement. There is nothing added to the wine at all. It is a treatment of the material before fermentation and not afterwards.

Mr. MANN. I could not see, when we had this bill up before, how it was any different from applying heat.

Doctor WILEY. It is different from applying heat, because heat only changes the materials which nature has put in; but if you add sugar—

Mr. MANN. Well, of course, that is true in a way; but still it is an application of sugar to the juice of the grapes before the wine is made.

Doctor WILEY. Wine is not a mere alcoholic beverage. It is an alcoholic beverage plus the material it gets from the grape. Now, adding sugar does nothing but increase the amount of alcohol and diminish the proportion of the other substances which the wine contains as wine, which give it its flavor. To that extent a sugared wine is not a natural wine. But the Germans have the same law. They have a law which permits the sugaring of wine, and so have the French. The French law says that when a man wants to put sugar into his wine he must give public notice in the town hall that he is going to add so much sugar to so much juice on a certain day.

Mr. MANN. Would you claim that if you wanted to make sherry you would have to mark it that it is strengthened or fortified with alcohol?

Doctor WILEY. If you fortified it with alcohol you would take the alcohol out free of tax—the brandy to do it with—in this country; and everybody knows that sherry means a fortified wine.

Mr. MANN. Is not all sherry fortified?

Doctor WILEY. All of it. So is Madeira.

Mr. MANN. So it would not require any marking?

Doctor WILEY. Oh, no; certainly not.

Mr. MANN. Although it is not a natural product?

Doctor WILEY. It never was.

Mr. MANN. No; it never was.

Doctor WILEY. No. That is quite a different proposition.

Mr. WANGER. I understood you to say, Doctor, that no whisky should be sold before it was 4 years old.

Doctor WILEY. I say this: That whisky is improved so that the majority of experts say that four years is about the minimum limit at which it is suitable for consumption.

Mr. WANGER. From the standpoint of health?

Doctor WILEY. From the standpoint of health and flavor, I think whisky should not be sold before it is 4 years old.

Mr. MANN. Is that the standard of health or the standard of good whisky?

Doctor WILEY. It is the standpoint of good whisky. I will take back the health part, and say "good whisky." [Laughter.]

Mr. WANGER. That would be only a matter of taste, then?

Doctor WILEY. It is a good deal a matter of taste.

I thank you, gentleman, for listening to me for three days. I have tried to tell you what seemed to me to be the principles on which some of the opposition to this bill has been based, and in a way which I know is crude and disconnected to establish some of the principles which have been brought to my notice in my investigations which bear upon the principles of the legislation.

Mr. ESCH. Doctor, there was one question presented by one of the witnesses relative to the preservation of fruit juice for use in soda-water fountains. Is that necessary?

Doctor WILEY. You can use that same principle of the sterilized faucet exactly; it would be very beautifully used in that case. It would be no trouble at all. You could keep it for months, and through the summer time or any time in a bottle, absolutely sterile, by a very simple contrivance.

Mr. BARTLETT. There was a man that came here from Iowa that testified with reference to canning vegetables—peas. He used something that was not necessary in his business, Doctor, did he?

Doctor WILEY. He testified that he used nothing but pure peas. That was Doctor Frazer.

Mr. BARTLETT. No; there was a man——

Mr. MANN. He testified that some people used saccharine.

Mr. BARTLETT. There was a gentleman from Keokuk, Iowa, whose name I saw somewhere.

Mr. MANN. I did not hear that.

(Doctor Wiley was thereupon excused.)

(By request of Mr. Ketcham, Mr. Esch read aloud the following letter:)

NEW YORK, *February 26, 1906.*

MY DEAR GENERAL: I received copy of Senate bill No. 88, dated February 22, which I assume is the complete bill as passed by the Senate. If there were any amendments made to this bill that are not included in printed copy, I would be glad to learn of them. One of the most objectionable paragraphs of this bill, beginning with line 24 on the eighth page, still remains the same as in the original bill, and we must confess that after a thorough attempt to digest its meaning we are totally incapable of comprehending it. The use of the words "distinctive term" is not clear, as it does not appear in any preceding part of the bill, nor is it explained anywhere that we can find. What we want to accomplish is the safety of the enormous industry of manufacturing our evaporated cream, an article regarding which the purity has never been questioned, by providing clearly for its standing.

Under the law as it appears to us now it might be possible for the Agricultural Department to declare these goods misbranded because the evaporated cream is not pure fresh cream evaporated. Such an article could not be made commercially. "Evaporated Cream" is a trade name established by twenty years of usage to designate an unsweetened condensed milk. While there is an unsweetened condensed milk sold, it is usually sold and delivered in glass packages, being delivered from wagons daily. It is not sterilized for keeping an indefinite length of time. The use of the words "Evaporated Cream" is for the purpose of differentiating between all other milk products heretofore sold, and this trade term "Evaporated Cream" is now fully understood by all consumers and the trade in general throughout the world.

The amendments I sent you in my letter of December 21 on this particular section of the bill I have revised more briefly, and it makes clear the point I mention regarding "Evaporated Cream." This complete part of section 5 would then read as follows, beginning with line 22, substituting this for the printed section:

"An article of food shall be deemed to be misbranded, first, if it be offered for sale under the name of any other article: *Provided*, That goods which have come into general use under a distinctive or descriptive recognized trade term to indicate the class or kind of the article shall not be deemed misbranded if the label contains prominently thereon an exact description of the goods."

Our other objections to the bill in question, such as having final judgment of court before the Department can proceed to publicly denounce the goods, and that section covering export business we note are not covered. The main thing now, and the only important feature, is this section covered in the amendment proposed. If you will let me know whether the House committee having charge of this bill intends to have a hearing, or whether you can procure the amendments without such a hearing, I will be very glad. Meanwhile if there is anything to be gained by coming down to Washington for the purpose of further explanation to those whom you may find interested, I will endeavor to arrange it.

I acknowledge receipt of your letter of February 19, replying to my inquiry regarding Mr. F. W. Taylor.

With regards, I am, very truly, yours,

WM. J. ROGERS.

(A motion was thereupon put and carried declaring the hearings on the pending bills closed; and, after giving a hearing to Mr. Webb, whose remarks are printed as a separate document, the committee adjourned until Friday, March 2, 1906, at 10.30 o'clock a. m.)

(The following are the papers referred to by Doctor Wiley in his remarks immediately after the recess; and by direction of the committee they are printed as part of the hearing:)

EXPERIMENTS ON THE EFFECTS OF BORIC ACID AND BORAX ON THE HUMAN ORGANISM.

[Dr. L. Spiegel, *Chemiker Zeitung*, 1906, 30, 14.]

Under the above title Doctor Kraus gives a résumé of the report of Doctor Wiley without entering into a criticism of the report as to whether the conclusions are justified by the experiments.

Following is a criticism by Dr. Oscar Liebreich, which will probably be of interest to the readers of *Chemiker Zeitung*. Wiley states that the health of the subjects was carefully investigated by competent persons, in this case physicians. The examinations were made by two physicians every ten days, and the total time required for this examination amounted to a total of six hours in one month. It is therefore not to be wondered at that the examination was quite superficial.

In such experiments as Doctor Wiley's it is indeed difficult to maintain uniformity of habit, as well as avoid the effect that environment will have on the appetite of the subjects. In this these difficulties were not eliminated. The dining room, which Liebreich himself had inspected, of necessity tended to affect the appetite on account of the odor of chemicals and kitchen fumes. Further, the boric acid and borax were not administered in a manner similar to the way they exist as preservatives. Quantities of the preservative greater than the total that would be ingested were all the food taken preserved, and this amount was administered in a single foodstuff, of which but a little is used at a single meal. For example, it was incorporated into the butter. Under these conditions it is not surprising that the subjects cultivated an aversion to this particular food. As soon as this condition prevailed, the preservative was administered unmixed in gelatin capsules. Doctor Liebreich comments on this that under these conditions a greater absorption of the preservative would take place and would give an entirely erroneous picture, for even such inert substances as salt and sodium bicarbonate would have a decided effect on metabolism, digestion, and general health of the subject.

It is not proper to attribute any disturbance of digestion to the specific effect of the boric acid. From Wiley's tables it will be seen that there was no definite relation between these disorders and the administering of the preservative. Following case will serve to illustrate:

One of the subjects received for a period of thirteen days from 1 to 3 grams boric acid, a total of 25 grams, without any apparent physiological effects. Four months later the same subject after five days' administering 0.5 grams daily of boric acid showed symptoms of physiological disturbances. In spite of the further administering of boric acid his health grew better after about one month, without any apparent reason; the further administering was then stopped. Four days later the subject grew worse. Although here there is absolutely no relation between the administration of boric acid and the illness, one is immediately assumed in the report.

This example shows quite conclusively that much weight can not be placed on the relation between the administering of the preservative and the physiological condition of the subjects. The weight of the report lies rather in the conclusions arrived at by Doctor Wiley as a chemist from the mass of tabulated matter concerning the objective experiments.

The next thing of importance is the loss in weight observed in the subjects, which amounted to, on the average, 500 grams per subject. Naturally a loss in weight may be attributed to any of the aforementioned physiological disturbances. But there is another incident entering here. Doctor Wiley used the fore periods to determine the amount of nourishment required for each subject, but during the boric-acid period he decreased the quantity of food, when, in his opinion, a "plethoric condition" occurred. The fore periods were in the first place too short. In fact, the required ten days, as Doctor Wiley states were necessary, were never attained. Further, the medical examinations to determine a "plethoric condition" are wanting. The decrease of nourishment would naturally produce a decrease in weight. As a matter of fact, this loss in weight is of slight significance, as Doctor Wiley himself acknowledges.

The experiments on N. metabolism show conclusively a decrease in N. eliminated with an increase ingested during the boric acid period. It is inconceivable how Doctor Wiley can designate this as a "disturbance." One might claim a beneficial effect for boric acid from this, but Doctor Liebreich refrains from drawing too great conclusions from these minor differences, and in doing so avoids making the same mistake that Doctor Wiley does. The greatest portion of Liebreich's criticism is taken up with the discussion of the phosphoric acid metabolism tables and Doctor Wiley's conclusions, for upon these is based the statements concerning the evil effects of boric acid. According to these tables, the use of boric acid produces an increase in the elimination of phosphoric acid and would necessarily produce "phosphoric acid starvation." It has long been known, and Doctor Wiley's tables tend to confirm it, that an equilibrium never exists in the case of phosphoric acid, but that the same is subject to marked fluctuations. The principle applied by Doctor Wiley of taking the average of short fore periods and comparing same with vastly longer boric acid periods may be questioned. Liebreich shows in single instances that the average figures of the fore periods could not exist for longer periods without showing decided abnormalities, and often the same subject shows in two fore periods taken at different times contradictory figures in connection with phosphoric acid eliminated.

If we examine all the data for phosphoric acid eliminated in all the experiments of Doctor Wiley, we find that in the majority of cases and the average of all the average figures for the phosphoric acid eliminated during the boric acid periods are always less than in the fore periods.

Doctor Wiley has determined the elimination values, as compared to the ingestion values, and then determined the balance; but in order that they be comparable it would be necessary that the ingestion be constant. But this was not the case. As a matter of fact, the balance during the boric-acid period and also the average of all determinations was calculated from an ingestion value for less than that of the fore period. This distortion of real conditions may be seen in another way.

First, Doctor Wiley has omitted a large number of results out of the 30 cases investigated, without giving sufficient reasons for doing so. One is led to believe that the experiments with 30 subjects are at hand, when, as a matter of fact, they comprise but 16. This is of considerable importance, since Doctor Wiley himself calls attention to the fact that it is necessary to compensate the coincidences by a large number of observations.

A number of days are tabulated which originally were intended for the boric-acid period, but during which, for some reason or other, the administration of boric acid ceased.

Liebreich has tabulated the results for each experiment separately, with Doctor Wiley's comments, and has carefully discussed each. The elimination values for phosphoric acid are placed in diagram in order that they may be more readily examined. In only a few cases do the facts bear out Doctor Wiley's conclusions, but in a vastly greater number of cases the facts contradict the conclusions. It is noteworthy that, especially at such a point where phosphoric-acid elimination apparently increases during the boric-acid period, this increase does not increase with increase of boric acid ingested, as one would necessarily conclude to be the case. The reverse is true!

Doctor Wiley admits that conclusive evidence is lacking to prove that boric acid is harmful, and those that refer to Doctor Wiley's report as verifying this statement do the author an injustice, for they disregard this statement of his. Doctor Wiley justifies his conclusions in the following manner: As the judge and jury try to decide between contradictory evidence which is the more reliable, and give the most weight to that which is deemed the more probable.

Doctor Liebreich states that this is expected of a judge and jury, but in science such a statement is the equivalent of a declaration that the data obtained are unreliable and prove nothing conclusively. As a matter of fact, it would be the ruin of scientific investigation to decide mooted questions in such a superficial way.

Consider, for instance, the discussion of the data concerning the after periods. In some cases the effects of the boric acid disappear; in others they grow more pronounced. No matter what the conditions may be, the boric acid is responsible. Those apparent effects that disappear after boric acid is no longer administered prove conclusively that boric acid produced them. In other cases the effects are produced long after the administering is stopped. Nevertheless, the boric acid produced them. And at the end of the year, quite a long time after the experiment, the subjects are in better physical condition than before the experiments. Nevertheless, the boric acid had an evil effect, and only the regularity of habits of life during the experiment prevented the evil effects and prevented them long after the period of the experiment. This is Doctor Wiley's conclusion. He who carefully reads Liebreich's comments and critically examines Wiley's report will come to a like conclusion as Liebreich—that this report does not give the slightest proof of the declared evil effects of preparations containing boric acid or borax as they are used as preservatives of food materials.

QUANTITY OF BENZOIC ACID THAT MAY BE CONSUMED.

Doctor Vaughan specifically states that a man might eat 1 grain of benzoic acid a day all his life, in addition to what is formed in the body as a result of destructive metabolism, and be perfectly safe. As to 2 grains a day he is uncertain (p. 72).

The representatives of the manufacturing interests have asked this committee to legalize the use of a large number of preservatives, among them benzoic acid specifically, in quantities not exceeding certain amounts, viz, one-fourth of 1 per cent. If preservatives are specifically admitted by act of Congress in amounts not exceeding a certain quantity, and the commission of which Doctor Vaughan has spoken should find that they are injurious to health in less quantities than that specified, then the law would legalize the addition to foods of bodies specifically declared injurious.

I surely can not think that the committee would desire to thus legally injure the people of this country. But take the maximum amount of which Doctor Vaughan said he was certain. Did he state to the committee that that maximum amount which he could eat would not be injurious to another man? That it would not hurt an infant? That it would not impair the prospects of a convalescent to reach a complete state of health? Would the law prohibit anybody from eating more than 1 grain a day?

You can readily see that if one-quarter of 1 per cent, or one-half of 1 per cent of a preservative is legalized in foods, that it may legally be put in every food, and surely manufacturers would do this whenever it would cheapen the cost of production, as it would in most all cases. Therefore, fix any maximum amount of benzoic acid, or any other preservative, for a food product and every manufacturer who desires to make the greatest amount of money would legally be entitled to use the preservative to the maximum amount indicated. It would be put in fruits of all kinds and vegetables, as it is to-day. It would be sprinkled over meats, fish, and oysters. It would be placed in all sterilized products, so as to insure a more perfect sterilization with less expense. It would be added to masses of material kept in large quantities for subsequent manufacturing purposes. It would go into cheese, into butter, into milk.

It requires no mathematical calculations on the part of your committee to see that a consumer, instead of getting the 1 grain a day of benzoic acid which is the maximum quantity that Doctor Vaughan is absolutely certain about, could easily get 20, 50, or 100 grains a day in food products which would all conform absolutely to the law. Now, you have not had any greater authority than Doctor Vaughan to plead for the legalization of preservatives, and therefore, acting upon his certain statement, you would make it possible for every consumer of foods in this country to eat benzoic acid, or any other permitted preservative, in quantities which every one of your experts has admitted to be positively injurious. This does not seem to be good law. It does not seem to be good hygiene. It does not seem to be good ethics.

Doctor Vaughan states, page 72, that he thinks a board, constituted as the advisory board to the Surgeon-General, the board of the Public Health and Marine-Hospital Service, would be the ideal one. This board is constituted as follows:

CHAP. 1370.—AN ACT To increase the efficiency and change the name of the United States Marine-Hospital Service.

SEC. 5. That there shall be an advisory board for the hygienic laboratory provided by the act of Congress approved March third, nineteen hundred and one, for consultation with the Surgeon-General of the Public Health and Marine-Hospital Service relative to the investigations to be inaugurated, and the methods of conducting the same, in said laboratory. Said board shall consist of three competent experts, to be detailed from the Army, the Navy, and the Bureau of Animal Industry by the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Secretary of Agriculture, respectively, which experts, with the director of the said laboratory, shall be ex officio members of the board and serve without additional compensation. Five other members of said board shall be appointed by the Surgeon-General of the Public Health and Marine-Hospital Service, with the approval of the Secretary of the Treasury, who shall be skilled in laboratory work in its relation to the public health, and not in the regular employment of the Government. The said five members shall each receive compensation of ten dollars per diem while serving in conference as aforesaid, together with allowance for actual and necessary traveling expenses and hotel expenses while in conference. Said conference is not to exceed ten days in any one fiscal year. The term of service of the five members of said board, not in the regular employment of the Government, first appointed shall be so arranged that one of said members shall retire each year; the subsequent appointments to be for a period of five years. Appointments to fill vacancies occurring in a manner other than as above provided shall be made for the unexpired term of the member whose place has become vacant. (Approved July 1, 1902. U. S. Stat. L., vol. 32, pt. 1, p. 713.)

I have asked the office of the Surgeon-General respecting the assistance which this board has given him, and find that a meeting of it has never been called. I beg you in contrast to this to consult the records showing how often the Secretary of Agriculture called in to his assistance the experts he is authorized to employ. For four years this board has been meeting in Washington and in other parts of the United States. It has consulted hundreds of experts in manufacturing, in the making of preservatives, in the utilization of preservatives in food products, and yet this board has carefully refrained from giving any opinion of any kind to the Secretary of Agriculture on the subject of wholesomeness.

I feel certain that when the Secretary of Agriculture comes to consider the question of wholesomeness, he will select the very class of persons which Doctor Vaughan includes. But the board which he

suggests, instead of enlarging the opportunities of the Secretary of Agriculture, would restrict them.

In regard to this matter, if you will permit me, I will say that I shall favor any change in the bill which will remove any doubt as to whether the Secretary of Agriculture will consult "other experts," I should especially like to see the pharmacologist and physiologist-chemist of the Public Health and Marine-Hospital Service added to the board which the Secretary of Agriculture should consult on all matters relating to wholesomeness. These are men of splendid attainments and of open minds. Make an additional board of five if deemed advisable, but do not limit the power of the Secretary to consult other experts, and leave him free to decide after all have been heard. I should like to submit an amendment if you care to consider it, embodying the above points.

RESTRICTING THE SECRETARY OF AGRICULTURE.

I should say that nothing more hurtful to the purpose of the Secretary of Agriculture in securing the largest amount of the most valuable information on all these subjects could possibly be enacted than to take away from him the authority to consult a board consisting only of five persons. I do not think that this committee wants to in any way restrict the Secretary of Agriculture from securing information of this kind.

I have not made a census of the number of people who have been consulted already in fixing the standards of purity for food products, but I should say that 150 would be a small number. And yet no recommendation has been made to the Secretary of Agriculture in regard to any food product other than that relating to its chemical composition and the method of selecting the materials of which it is made and preparing it.

On page 3 of Circular No. 13 of the Office of the Secretary, proclaiming these standards, it is stated that—

The several schedules of additional standards recommended have been submitted, in a tentative form, to the manufacturing firms and the trade immediately interested, and also to the State food-control officials for criticism. Helpful suggestions and information have been received from many sources which will later be more specifically acknowledged.

Schedule 3, preservatives and coloring matters, has not yet been considered by the committee, but on page 12 it is stated, in regard to the standard for wine, that "The subject of sulphurous acid in wine is reserved for consideration in connection with the schedule preservatives and coloring matters."

I can not speak, gentlemen, for the Secretary of Agriculture, but, judging from his past attitude in this matter, I may say that he will certainly consult not only five experts, but fifty, if necessary, in order that he may arrive at just decisions respecting the subject of preservatives and coloring matters in foods. It seems to me, therefore, that it should be left finally to some specific officer—in this case the Secretary of Agriculture—to adopt and promulgate not only standards of purity but also regulations respecting preservatives and coloring matters, and he should not be compelled to adopt the decision of any board of experts, but should at least have the right which the President of the United States has to veto the conclusions of such a board if he think they are not of a proper kind.

And even if you appoint a board, Mr. Chairman, you have not eliminated the one-man power. It is entirely conceivable that on every question which may arise in such a board that there will be two members on one side and three on the other, and then you have not eliminated the one-man power to which such militant objection has been made before this committee. I think myself that somebody must finally make the decision, and I do not know of any head of a Department of the United States Government who, on the subject of foods in all their relations to the people in this country, would be likely to come to a more just decision than the Secretary of Agriculture.

That the purpose of asking specifically that the use of preservatives may be permitted in foods is to forestall any possible unfavorable report of any commission of any kind in the future is clearly brought out by the statement of Mr. Gardner in an answer to Mr. Bartlett.

MR. GARDNER. I quite understand that, Judge. If you will read it over, however, I think you will see that it does not mean what the people who have introduced it perhaps think it does mean. At all events, I wish to appear and present my witnesses in behalf of the addition to the Hepburn bill of a paragraph which shall provide a minimum of this sort, and make it impossible for any commission, whether it shall be composed in such a way as was suggested by Doctor Vaughan this morning or by the selection of the Secretary of Agriculture (in view of the fact that many people who have investigated those subjects are inclined to take a not altogether common sense and practical view of this question), to prohibit the use of boracic acid, provided it does not appear in excess of one-half of 1 per cent—the amount stated by Doctor Vaughan this morning as being harmless.

I think it must be evident, therefore, to this committee that the principal purpose of establishing a new commission is that it shall report in favor of the use of preservatives and coloring matters in foods, and this desire is inspired by the fear that the Secretary of Agriculture in selecting his advisers under the present act may be induced to come to a contrary conclusion. Therefore it seems to me that if such a new commission is constituted to meet the views of the witnesses you have had before you they should be limited in authority in order that the manufacturers may be fully secured as to the character of the report which they shall make, and it should be provided that no finding of this commission shall be admitted to be valid and binding on the Secretary of Agriculture unless it is in favor of the use of preservatives and coloring matters in foods.

Now, it seems to me that the only fair way is to leave the matter open as it is now, and permit the Secretary of Agriculture to consult the experts I have mentioned above and all experts who may be able to furnish him valuable information, and then after having so consulted them come to such decision as in his judgment may be advisable. It would be foolish, Mr. Chairman, to contend that any one expert, or any body of experts, or any one Secretary of the Department, or all the Secretaries of the Departments could arrive at a conclusion which would be absolutely faultless. It does not appear to me to be wise to so tie up this matter that there is no appeal from a conclusion of this kind, no difference who makes it. The courts must finally decide.

I may illustrate by my own opinion. I will confess to you that when I began four years ago the experiments authorized by Congress to study the effects of preservatives, coloring matters, and

other substances added to foods, upon digestion and health, I was possessed with a very strong bias in the belief that a moderate use of these bodies was wholly unobjectionable. In the main, I had the same opinion that Doctor Vaughan has expressed in general in his testimony. I did not believe, however, that some preservatives were objectionable and others unobjectionable, but that they all were in the same class, which it seems to me is the only wise belief which can be held with reference to all noncondimental preservatives which have been employed.

As my experiments progressed my belief in the harmlessness of preservatives began to be shaken, and finally was entirely shattered. Now, it is but possible that I have reached entirely erroneous conclusions. My opinion is valuable only as it is based on evidence which is open to the interpretation of all persons who may wish to examine it. Every fact on which my opinion is based either has been published or will be published. Nothing has been concealed. All the data which appeared in favor of preservatives are fully stated. All that appeared to disfavor them are fully stated.

I could not ask a commission to help me come to an opinion on my own work. I stated it, I believe, with a mind as free from bias as a human mind can well be made, and what little there was was absolutely opposed to the conclusion to which I was forced to come. Now, all data bearing on this subject must be weighed. In the same way you must see how extensive they were, how they were obtained, what methods were used in preparing them, and how they were construed.

The Secretary of Agriculture of course will have the opportunity to consider the data of my own personal observations, but not only he, but every other expert in the country who wishes to examine this evidence has the opportunity to do so. I should not consider it any mark of disrespect for any one of my professional brethren to study the very data which I have studied and come to an entirely opposite conclusion. The conclusions based on the data are opinions. The data are immutable facts unless it can be shown that some error crept into the method of ascertaining them.

This is the only scientific way of studying this question.

Therefore the specific admission in this bill of any one preservative by name as distinct from any other preservative would be in the first place an unfair discrimination in favor of the favored article, and in the second place it would be an evidence on the part of this committee that in the present state of conflicting opinion on these matters that the committee will ignore all opinions which are unfavorable to preservatives and accept all those which are favorable. And this, on a mere statement before the committee, without any investigations of the facts on which those statements are based. I am not, of course, a lawyer, but it does not seem to me that the rules of evidence would indicate that such an action would be altogether proper.

Doctor Vaughan also expressed an opinion concerning preservatives before a former committee, which I think is an excellent one.

In speaking of the question of preservatives (Senate report of adulteration of food products, February 28, 1900, Fifty-fifth Congress, p. 203) Doctor Vaughan, after admitting their desirability in some cases, stated as a rule their use is to be condemned for two reasons.

In the first place, like coloring matter, it enables a man to sell a poor-grade article in place of a better grade, and, in the second place, it enables the manufacturer to be less careful in other means of preservation. For instance, if he is putting up a can of peaches or pears or anything of that kind, if he will add a little salicylic acid he need not be so careful in his sterilization. That is a very important thing. I do not think salicylic acid or butyric acid or anything of that kind ought to be allowed in preserving fruits or jellies, because if sterilization is complete those things can be kept without any antiseptic added.

These sound ethical principles still remain in force, and Doctor Vaughan has declared without reservation that where sterilization is practiced a preservative agent should not be used. Here the evidence shows that many perishable substances, like catsup, are made and sold by sterilization alone without any added preservative. Therefore this principle of Doctor Vaughan's should be applied.

You see, gentlemen, that Doctor Vaughan and I are in accord on almost every point which has been brought before you.

PROHIBITION OF PRESERVATIVES IN MILK.

In further reference to Doctor Vaughan's statement that he would absolutely prohibit the use of every kind of preservative in milk, I desire to call the attention of the committee to the following points:

I believe it is recognized by everyone who has familiarized himself with the facts, that of all common food products milk is the most prone to decay. Doctor Vaughan himself has shown that by result of bacterial action in milk a poisonous substance, which he has called "tyrotoxicon" is developed, which is very deadly in its effects. During the summer months especially the newspapers are full of many cases of illness and death due to the consumption of ice cream.

The rapidity with which bacteria multiply in fresh milk is something phenomenal. Therefore it seems reasonable to believe that if there could be any justification of the use of preservatives in food products it would be in milk. Doctor Vaughan's insistence on the exclusion of every kind of preservative from milk, as I have already said, is certainly a confession that he believes these things are injurious. But it may be said in extenuation of this that milk is peculiarly the food of the infant. I do not desire to contradict that statement, which is doubtless true. But in what is the digestion of the infant different from the digestion of the adult? In no respect whatever except that of a mechanical difference. The infant is incapable of mastication. Therefore he can not use solid food. Milk is a perfectly balanced food. It contains all the elements necessary to the sustenance of the body and in proportions best suited for nutrition.

In cases of illness among adults where digestion is disturbed, milk is a most reliable and common diet, since it is easiest digested. Therefore if preservatives interfere with digestion they would have a less harmful effect than on any other food product, because milk of itself is easiest of digestion.

The process of metabolism in the infant is exactly that in the adult. Metabolism consists in the change of foods, first, into soluble forms and then the change in the character of these soluble forms by absorption into the system, and by utilization in building of tissues, and finally by degradation into excretion products. With the exception of the mechanical division of foods by mastication these two processes are absolutely identical in the infant and the adult.

It follows, therefore, as a reliable and logical conclusion, that any added substance which renders milk deleterious would have the same effect on any other food in which it might be used.

In this connection I call attention to the statement of Doctor Eccles on page 156:

Mr. ESCH. Doctor Vaughan, who appeared before us last week, stated that he would not put any preservative of any kind in milk.

Doctor ECCLES. I know that that is his position.

The CHAIRMAN. What would be the effect of that quantity upon the system of a young child?

Doctor ECCLES. In answering that I will state that the secretary of the board of health of Indiana, who is also a physician, declares that he has so tested it not only on children, but on adults and on himself, and he has found that the effect is beneficial.

Again, on page 152, Doctor Eccles says that—

Milk is the most dangerous disease carrier we have in food. What do the statistics of the United States tell us? Compare the official statistics of 1890 with those of 1900 and you will find that the death rate in all these diseases went down. During those ten years this change occurred principally in Chicago. Chicago put no stop to the use of preservatives. The death rate has been declining in Chicago.

Again, on page 152 and page 153, Doctor Eccles said that the two parts of the world where the death rate rose enormously were Berlin and North Dakota, and that this was due solely to the action of the health authorities in these places in forbidding the use of preservatives. This accusation against North Dakota perhaps should not be taken too seriously until the health officials of that State can be heard under oath.

In the *Grocery World* of December 18, 1905, page 18, Food Commissioner Ladd, to whom reference was made by Doctor Eccles, published the following statement:

Certain manufacturers have of late been making a desperate effort to create a sentiment in favor of the use of chemical preservatives in food products, trying to show that these products are not at all harmful.

One Dr. R. G. Eccles, of Brooklyn, N. Y., presumably speaking for and in the interest of canners and purveyors of food products, has published a book of 202 pages, entitled "Food Preservatives: Their Advantages and Proper Use." Nearly all the food journals have republished this work, in part at least, commented very favorably upon it, and claimed that the advocates of pure food, free from chemical preservatives, will now have to take a back seat.

There never was written a more fallacious work than this same book by Doctor Eccles. In a recent number of the *American Chemical Journal*, owned and edited by Dr. Ira Remson, president of Johns Hopkins University, appears the following review:

"It is difficult to believe in the competency and sincerity of the writer of this book and, therefore, impossible to criticize it without a new volume. No examples need be given to justify the above opinion, as it is borne out on every page. The entire book is a tangled mixture of facts, misstatements, and theories, which can hardly fail to mislead those unfamiliar with the subject. It is worthy of no further notice than is required to condemn it unreservedly. There is, of course, much to be said in favor of the judicious use of food preservatives, and, when discreetly employed, they are undoubtedly a safeguard. Legislation controlling their use is, however, indispensable to prevent the more unscrupulous manufacturers from doing great harm."

The above is a fair statement of the merits of the work. As showing the class of arguments used by Doctor Eccles, I may cite where he recently stated, among other things, that statistics gathered by the last United States census showed that for the period from 1890 to 1900 the people of North Dakota suffered more largely from stomach troubles and kidney diseases than those in any other part of the United States. He then states that this is the one State where the food law is being most rigidly enforced, and claims that this increase of

disease is due to the fact that the people are deprived of the use of chemical preservatives in their food products and that there is greater fermentation, and, necessarily, bad results.

This is certainly amusing as well as ridiculous, for it is a well-known fact that during the period mentioned by Doctor Eccles North Dakota was without any food law whatever and was the recognized dumping ground for all classes of adulterated foods, foods preserved with chemicals, colored with coal-tar dyes, and sweetened with saccharine.

Instead of proving Doctor Eccles's contention, he has, by statistics, demonstrated what pure-food men all contend for—namely, that the continuous use of these products—preservatives, coloring matter, and saccharine—tends to produce digestive disturbances, kidney trouble, and kindred diseases.

MEMORANDUM REGARDING DOCTOR ECCLES'S STATEMENT.

Doctor Eccles's statements regarding the relation between vital statistics and food laws appear to have been without any reference whatever to the condition of the water supply of the localities mentioned or to their sanitary conditions. He draws inferences regarding such diseases as scarlet fever and diphtheria, the source of whose contagion is a mooted question, if not entirely unknown, and regarding typhoid fever, which is universally admitted to be due to the water supply, and is never claimed to be due to the milk supply, unless it finds its way into the milk by means of the water with which the dairy utensils are washed.

It is interesting to note that Doctor Eccles has taken the geographical regions into which the country was divided by the last Census Bureau because of the natural climatic and sanitary conditions which would presumably be uniform in those separate divisions, and has ascribed the difference in death rate to the one factor alone—of the amount of preservatives in food—and then not merely to the amount of preservatives actually found in food, but to what he believes to be the laws relating to the use of preservatives in foods, and not merely the laws of the sections he is considering, but the laws of individual States, each forming but a small section of their respective sections.

It is interesting to note, however, that Doctor Eccles has omitted from the statement he made to the committee many of the claims in the paper he presented to the American Pharmaceutical Association at its meeting in Atlantic City in 1904, in which he claimed that the death rate had been increased in certain States by antipreservative laws, which, as a matter of fact, were enacted after the date of the statistics he quoted in support of his contention.

The absurdity of Doctor Eccles's claims regarding the connection between the death rate and legislation regarding food preservatives is well illustrated by the case of Chicago. He makes special mention of the fact that from 1890 to 1904 the death rate in the city of Chicago was enormously decreased, and ascribes this to the fact that food preservatives were permitted in that city. He apparently overlooks the fact, however, that in the first part of this period the water supply of the city of Chicago was in a very bad condition, owing to the escape of a considerable portion of the sewage into the lake in the vicinity of the intake of the water supply, and also owing to the foul condition of the channel and river into which the sewer emptied.

This condition of affairs was remedied by the opening of a large channel in that city in the early spring of 1900, and for a number of

years the reports of the Illinois State board of health were largely devoted to the study of the influence of the opening of the channel on the water supply of the city, and also upon the condition of the Illinois and Mississippi rivers below that point. In the Report on Streams Examination by the trustees of the sanitary district of Chicago, dated December, 1902, we find the following statement:

The benefit of the sanitary waterway on the public water supply has not yet been fully realized, and will not be until the intercepting sewers and other works necessary to the exclusion of all sewage from the lake in the vicinity of Chicago are completed. But what may be confidently anticipated is foreshadowed in the great improvement of the sanitary quality of the water supply, under usual meteorologic conditions, since the channel was opened in January, 1900.

As to the improvement of the river and the south branch, no one who crosses a bridge from Rush street to Robey, or who lives, works, or offices in the vicinity of the main river and south branch, can fail to notice the change in the atmosphere since that date.

Further data relating to Doctor Eccles's arguments are found in the following publications:

[Bulletin of Pharmacy, December, 1906.]

A DEBATE ON THE PRESERVATIVE QUESTION—PROFESSOR BEAL AND DOCTOR ECCLES, WHO, AT THE RECENT MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, SUPPORTED THE USE OF CHEMICAL PRESERVATIVES IN FOODS, ARE ANSWERED BY DR. H. W. WILEY, THE WELL-KNOWN GOVERNMENTAL EXPERT AND AUTHORITY ON THE SUBJECT.

One of the chief subjects of discussion at the recent annual meeting of the American Pharmaceutical Association in Atlantic City was the use of chemical preservatives in food. President Beal, in his annual address, and Dr. R. G. Eccles, in a paper presented to the section on education and legislation, both took the radical position that preservatives in proper quantities are not only absolutely harmless on the one hand, but on the other are positively helpful and even necessary in the avoidance of ptomaine poisoning and in the prevention of typhoid and other epidemics alleged to result from contaminated food and milk. Keen interest was felt in the subject, but through a combination of circumstances, chiefly because of the unusual pressure of other matters of importance, the discussion was by resolution limited to twenty minutes, and the whole matter was finally referred to a committee of five with instructions to report next year at the Indianapolis meeting. The topic was thus made one of the live issues of the year, and under the circumstances we have thought it would be profitable to print the opinions of Messrs. Beal and Eccles in favor of preservatives, and ask Dr. H. W. Wiley, known to be opposed to them, to take the negative in the discussion. Doctor Wiley, it is probably unnecessary to say, is the Chief of the Bureau of Chemistry at Washington, and is probably America's leading authority in matters referring to pure food, food legislation, and allied questions. Some experiments which Doctor Wiley conducted a year or two ago on a "poison squad" of young men, and which were intended to show the effect or lack of effect upon health of some of the chemical preservatives, attracted widespread attention at the time.—THE EDITORS.

Portion of the presidential address of James H. Beal, retiring president of the American Pharmaceutical Association, referring specifically to the use of preservatives in food.

Equally as foolish and hurtful, perhaps even more so, are the laws which specifically or in general terms prohibit absolutely the use of the preservatives afforded by modern science for the protection of certain foods and drinks against putrefaction and fermentation.

I believe that it may be asserted, without fear of successful contradiction, that not one well-authenticated instance can be produced of injury resulting from the use of foods containing what may be termed "the modern antiferments" when employed in no greater quantity than necessary to prevent decomposition, while, on the other hand, myriads of cases might be cited of injury

resulting from the use of foods decomposed through the lack of such protection. In a very liberal per cent of cases where the certificate of the medical officer reads, "Died from natural causes," the true certificate would read, "Poisoned by ptomaines, administered in accordance with the statute in such case made and provided."

Furthermore, every theoretical argument that can be urged against the use of these modern preservatives on the ground of their being antiferments can be urged with equal force against common salt, vinegar, and wood smoke, which have been used as food preservatives since prehistoric time.

The quintessence of the comic opera is absurdity, but what author of comic opera would have the temerity to represent a nation of 80,000,000 of alleged civilized people as employing an army of inspectors, chemists, and other officers, at an expense of hundreds of thousands of dollars annually, to compel its citizens to eat ptomaine poisoned food, and inflicting pains and penalties upon such manufacturers as dared to avail themselves of the resources of modern science to prevent such an evil?

As a matter of fact, our laws are exactly upside down on the subject of preservatives. Instead of using the resources of government to hunt down and convict the manufacturer who uses a harmless antiferment in proper amount, they should be employed to detect and punish the man who is so careless of the public health as to send his products into the market without such an addition.

That there are preservatives that may be harmful in almost any quantity, and that others harmless in small amounts may be harmful in excessive amounts, goes without saying; but surely it should be possible to draft laws against such evils without stretching the definition of adulteration to such an extent as to cause the infliction upon the public of greater evils than the laws prevent.

In view, therefore, of the great and constantly increasing importance of this subject to the practice of pharmacy, I recommend that the president be instructed to appoint, or that the association or its council select, a committee of discreet and competent persons to take into consideration the legal definition of adulteration, especially as applied to the use of preservatives, and to report their conclusions at the next annual meeting of this association; this report, when approved, to be made the subject of a communication to the general public, and to the governors of the various States, in order that the average citizen may have the opportunity of learning the facts concerning the use of preservatives.

When the average citizen comes to know that much of what is called adulteration is such only by virtue of false and stupid legal definition, and that much of the law for which he pays and which purports to be for his protection in fact harms him both in body and in purse, and is not infrequently used as the instrument of official graft and plunder, then, and not before, may we expect legislation that is rational and helpful instead of imbecile and damaging.

Major portion of the abstract of a paper by Dr. R. G. Eccles, presented to the section on education and legislation of the American Pharmaceutical Association.

Food preservatives stop the multiplication of germs. The best authorities tell us that under favorable conditions one germ of disease can become 165,500,000 in twenty-four hours. The best medical authorities tell us that a few disease germs can not start a disease in us because of the immunity that every person has in some degree. It is when we take a dose too large for our resisting power that disease is possible. No one has ever experimentally started typhoid fever with a few germs. Fairly pure water never can have enough to start the disease experimentally. Such water does start the disease somehow. It can not do it direct. How does it do it? By the few germs from that water getting multiplied into millions in milk, meat, fish, oysters, or other food. A quantity of germs that would hardly give one man the disease will multiply in food into hundreds of millions of times more in a day or two. Enough will develop to produce an epidemic. That such epidemics do start has been proved again and again by the best medical authorities.

If preservatives do preserve, and if they do keep down the multiplication of germs in food, it is easy to infer that they must keep down the number of disease germs and the amount of toxins. If a dose that would give the disease only to one is multiplied many million fold, it is easy to see how preservatives, by stopping such multiplication, can keep down disease. With the statistics of the whole United States before us we have the test of time as well as the test of space by which to see whether or not preservatives can, in food, inhibit disease germs. Prior to 1890 no formaldehyde was used in milk and preservative

making had not grown to the dimensions it reached ten years later. Such diseases as are known to be carried in food should have been lessened in amount and virulence if preservatives preserve. Here we give the official statistics for the United States. These are the figures of the results on a poison squad of millions of people during ten years. This shows just how much preservatives injured during the very years when far more were used than ever before:

Death rate due to each cause per 100,000 of population.

DEATH RATE FROM EACH DISEASE.

Cause.	1890.	1900.	De-crease.	In-crease.
Scarlet fever.....	18.6	11.5	2.1	
Diphtheria.....	70.1	35.4	34.7	
Typhoid fever.....	46.3	33.8	12.5	
Cholera morbus.....	4.5	6.2		1.7
Dysentery.....	32.3	18.6	18.7	
Diarrhea.....	27.2	12.8	14.4	
Enteritis.....	40.1	52.5		12.4
Cholera infantum.....	79.7	47.8	31.9	

Country people do not need preservatives to keep their milk for long shipments. They do not need preservatives in their meat, their butter, their cream, or in any of the perishable products of their farm to make them keep till consumed. City people are often unable to get such foods unless preservatives are used. Disease germs develop before putrefaction sets in. Food containing a multitude of disease germs can not, generally, be told from wholesome food. The presence in food of preservatives checks putrefaction and stays disease germs. Here are some of the figures for typhoid fever. The following are Northern States:

Central region—plains and prairies. Chiefly farmers..... 32.1
North Atlantic coast region. Chiefly city people..... 14.2

Excess death rate where preservatives were least used..... 37.9

Prairie region. Chiefly farming population..... 35.7
Middle Atlantic coast region. Chiefly city people..... 14.2

Excess death rate where preservatives were least used..... 21.5

Missouri River belt. Farmer excess very large..... 37.9
New England and New York hills and plateaus. Farmers fewer..... 18.1

Excess death rate where preservatives were least used..... 19.8

The figures for the rural and urban population of each region when taken by itself show the same condition of excess of deaths where preservatives are used the least. The fact holds true for region when compared with region, and it likewise holds true when any one region is compared with itself. To this rule there are in twenty-one regions three exceptions, and the conditions in these show the rule is not violated. Coincident with raids on preservatives by food and dairy commissioners comes a rise in death rates from typhoid fever. Pennsylvania is not only raising its own death rate, but by having its milk sent to New York is raising the death rate there. New Jersey has had raids and so has New York, but Pennsylvania has been the worst. Michigan has had an Alma banquet with ice cream that caused a single epidemic of nearly forty cases. A few germs carried into milk on the feet of a fly, a multiplication of many millionfold, and the natural immunity of a multitude is overcome. Who can give any reason why preservatives in that milk should not have stopped such multiplication and kept the numbers so low that no one would have been harmed?

An answer to the views expressed in the two foregoing contributions, by Dr. H. W. Wiley, chief chemist of the Department of Agriculture.

I believe thoroughly in the right of every citizen of competent age and ability to choose for himself what he shall wear, what he shall eat, his own politics, and his own religion. In other words, I believe in the widest personal liberty

for the citizen compatible with the welfare of society. For this reason I believe that every citizen who desires to eat chemical preservatives in his foods should have the right to do so, just as he should have the right to use, within proper limits, fermented and distilled beverages, tobacco, etc.

I believe with equal conviction that no citizen should have forced upon him against his will or desire articles of food or condiments which he does not wish to use. This is one of the reasons that lead me to condemn the indiscriminate use of coloring matter and preservatives in food products. There are many hundreds of thousands of our citizens who do not wish to use these bodies in their foods.

Therefore, my conviction is that any extraneous substances added to a food product should be plainly specified so that the consumer may know what he is buying.

For the complete protection of the public the addition of any deleterious substance to food products should be forbidden for all products going into common consumption. When consumers desire to have such products added to their foods such orders should be given, and the foods thus prepared delivered only to the consumers who order them.

The determination of what is injurious is a problem of great difficulty. Experts differ widely on this subject, and the final decision perhaps must be left to the weight of authority or actual demonstration.

Foods can be preserved for a proper length of time in wholly unobjectionable ways, namely, by cold storage, desiccation, and sterilization. The only excuse for chemical preservatives is that it is cheaper and more convenient to preserve foods in this way than by any of the other methods.

No one will deny that the materials used for the chemical preservation of food are often useful for specific purposes as medicines. Boric acid, salicylic acid, benzoic acid, sulphurous acid, and formaldehyde all have undoubted uses. This, however, is no excuse for placing them in foods. It is not necessary to medicate the food of a thousand citizens in order to reach one who may need it. Drugs should be reserved for dispensation by physicians and pharmacists and not by the food purveyor.

The dangers from putrefaction and ptomaine poisoning are very great with some kinds of foods. The obvious conclusion to be drawn from this statement is to avoid all kinds of foods which present dangers of this character. No one eats mushrooms indiscriminately unless they have been selected by an expert. No one should eat preserved foods indiscriminately where dangers of ptomaine poisoning exist. It is not good logic to avoid one danger by substituting another where there is a way which presents no danger at all.

In cases of necessity, however, and these may sometimes arise, it is wise to choose between the two evils. Hence, there may be occasions when it is highly desirable to use chemical preservatives in foods for special reasons. But I regard as extremely illogical and unscientific the doctrine that the law should compel food manufacturers to use preservatives or else be forbidden the market. Throughout our country, unfortunately, there is frequent danger of robbery; therefore the laws relating to carrying concealed weapons "are entirely upside down." No citizen should be allowed to leave his home without being compelled to carry a concealed weapon. This is a perfectly fair statement of Doctor Beal's position on the preservative question.

The pharmacists of our country are waging a just war against the transfer of the pharmacy to the grocery store. It seems, therefore, strange to see the president of the American Pharmaceutical Association calling for legislation to compel every purveyor of foods to carry a pharmaceutical armament.

Doctor Beal says: "I believe that it may be asserted without fear of successful contradiction that not one well-authenticated instance can be produced of injury resulting from the use of foods containing what may be termed the modern antiferments, when employed in no greater quantity than necessary to prevent decomposition."

The reports of the German Imperial board of health, and part 1 of Bulletin 84 of the Bureau of Chemistry, do not confirm this statement. It is unfortunate that plain facts which have been established by demonstration should be ignored for the purpose of promoting a vain, intangible, and illogical theory.

Doctor Eccles's data, relating to the public health, are what the logicians call "non causa pro causa." Owing to the progress of modern sanitation, and especially to the control of the milk supply by having the milk fresh and free from preservatives, the death rate has largely decreased in many States.

Nearly all cities now have a complete control of the milk supply, and in such cases the use of preservatives is infrequent.

There is no time here to go into the details of these statistics, but simply to call attention to the fact that there is no evidence contained therein to show that the general use of preservatives has had the effect claimed therefor. If they show anything, it is that the use of fresh food in the rural regions has been the cause of a largely increased death rate.

The conditions of life, outdoor exercise, climate, elevation, etc., tend to make some localities more healthy than others, and especially more so than the crowded sections of large cities.

Doctor Eccles says: "Country people do not need preservatives to keep their milk for long shipments. They do not need preservatives in their meat, their butter, their cream, or in any of the perishable products of their farm to make them keep until consumed." Immediately following this is a table, how accurate I shall not venture to say, showing the tremendous excess of typhoid fever among the rural population.

The obvious deduction from these two juxtaposed statements is that pure, fresh food is the most dominant cause of typhoid fever. He adds that these "figures for the rural and urban population of each region, when taken by itself, show the same condition of excess of deaths where preservatives are used the least."

It appears that Doctor Eccles's statement that country people do not need preservatives in their food is not true. Otherwise the table of vital statistics is incorrect. In either case, therefore, the argument is self-condemnatory.

It is to be hoped that Doctor Warren, who is waging such a successful fight against the violators of the pure-food law of Pennsylvania, may see the error of his ways. He is raising not only the death rate of Pennsylvania, but also, by keeping formaldehyde out of milk sent into New York, is killing the people of the metropolis. At least, this crime is laid at his feet by Doctor Eccles, who says: "Pennsylvania is not only raising its own death rate, but by having its milk sent into New York is raising the death rate there."

It is difficult to reply to such statements as that just quoted. The most complete refutation is perhaps found in restating them.

Hygieia, daughter of Asclepius and favorite of Apollo, should hereafter not be represented as the goddess of fresh air, fruits, and flowers, wearing a wreath of laurel and feeding the serpent, which is the emblem of rejuvenescence, from the patera in her hand, but as having in one hand a flask of formaldehyde and in the other a pail of patent preservatives. Instead of laurel she should be crowned with a wreath of wintergreen redolent with the odor of methyl salicylate, wearing as ornaments crystals of sodium borate; her breath should be reminiscent of the fumes of burning sulphur, and in large letters upon the pail this motto should be found: "Beware of the deadly poisons of pure food! Eat nothing that is not doped!"

The plain common sense of the people may be relied upon to reject absolutely such arguments as are presented by these two distinguished men against pure-food laws and for the furtherance of laws which compel the practice of adulteration.

The people will continue to demand foods as fresh as possible. No method of preserving which keeps foods over more than one season will ever prove popular. Those methods of preservation will be preferred which do not require the addition of any chemicals or drugs. The public conscience is awakening to the abuses which have been practiced and which will continue to be practiced as long as the addition of drugs to foods is permitted by the law. It is not likely that the American Pharmaceutical Association will ever indorse the theories of its retiring president.

PREPARATION FOR CONSUMPTION.

At this point I should like to call attention to the part of the bill specially referred to by Mr. Gardner, excepting from the provision certain articles which have to be specially prepared, relating to the proviso on page 8, lines 3 to 8, inclusive. I do not speak at the present time concerning the relation of this proviso to the wholesomeness of proper branding of the article, but to call attention to the fundamental principle of the law itself, which is one to regulate interstate commerce.

On page 2 of the bill, line 6, is provided that only samples are to be examined in original unbroken packages. It appears to me that any preparation of the materials in unbroken package or alteration thereof in no way would be excluded under the fundamental principles of the act. I am not a lawyer, and of course I may be wrong in this, but I hope the committee will carefully consider the matter, since it would be unfortunate to insert in the bill any provision which might result in declaring it unconstitutional.

The preparation of a food product for consumption—that is, its treatment in the kitchen—if regulated at all, it seems to me, should be regulated solely by the police powers of the State. I doubt even if the police powers of the State could go in a man's kitchen and supervise his cooking. There is no doubt, in my opinion, that if borax be added to a food product it may be practically all removed by proper maceration, but the law will scarcely send its agent into the household to see that cooking is properly done.

At this point I may as well say that if in the wisdom of the committee it would be advisable to provide for contingencies of this kind—namely, the packing of a food product with an injurious substance of a character which may or may not be removed at the option of the consumer—it would be specifically far better to except this class of food from the operation of the law than to introduce a discriminate principle which if logically applied to all parts of the bill would render its enforcement impossible.

Perhaps this is just as good place as any for me to say that in making this argument before this committee I am not by any means prepared to affirm that there may be food products necessary to man which can not be presented to him without the aid of preservatives, or even if there may be some luxuries not necessary but convenient, such as preserved codfish, tomato catsup, or sweet pickles, which can only be utilized when preserved. If in the wisdom of the committee this appears to be the case, I would suggest that a far more proper way to meet this contingency would be to specifically except such bodies from the action of the law. In other words, I am convinced that instead of opening wide the door and saying that preservatives may be used in certain quantities, thus opening to treatment every variety of food product, a specific reserve of certain substances would reach the same end and be far less objectionable.

In so far as any testimony before the committee is concerned, it appears that these three classes of foods are the only ones that now exist in which preservatives are either desirable or necessary. Let us then save the great mass of food material from possible suspicion and infection and leave open only those of small magnitude. In this case it would be undesirable to require labeling, because if you say preservatives may be used if notified upon package that provision may be extended to all foods. In other words, I wish the committee to distinctly understand that in so far as I am personally concerned I have no desire whatever to interfere with any legitimate business in the manufacture of catsup, codfish, fruit sirups, and pickles, the only classes of bodies which have been pleaded for before this committee. I do not think that the bill would be very seriously injured, or injured at all, so far as that is concerned, by excluding these bodies from its operation. I hope that the committee will consider this suggestion

seriously before reporting a measure legalizing the use of preservatives in food products.

As to coloring matters I might say that I can not see any reason for legalizing their use. There is a much more serious objection to added coloring matters in food than that which relates to the public health, and that is the deception which comes thereby to the consumer.

The evidence shows here that some food substances are prepared in bulk and placed in barrels before the final manufacture and canning of them is practiced. Other evidence shows that certain food products, such as strawberries, when sterilized and placed in cans lose their color. It was further testified by the witness from Cleveland that the red color in the fruit sirup prepared for soda fountains is a purely vegetable coloring matter, which, upon further inquiry, was found to be cochineal, a coloring matter prepared by grinding up dead insects.

Cochineal.—Cochineal is described in the Standard Dictionary as a dyestuff consisting of female cochineal insects (*Coccus cacti*) killed and dried by heat. The dried insect is about one-fifth of an inch long, purplish, and transversely wrinkled. It yields a brilliant scarlet dye, the pigment carmine, and is used medicinally.

Cochineal is discussed at considerable length in the United States Dispensatory, eighteenth edition, page 433, where the following medical properties are ascribed to it:

Cochineal is supposed by some to possess anodyne properties, but is probably useless. In pharmacy it is employed to color tinctures and tooth powders. To infants with whooping cough cochineal in substance is given in the dose of about one-third of a grain (0.02 gram) three times a day. The dose of a tincture (one part in eight parts of diluted alcohol) is for an adult from twenty to thirty drops (1.25–1.9 c. c.). In neuralgia, Sauter gave half a tablespoonful (7.5 c. c.), with asserted cure.

Now, I am not asserting that desiccated and ground insects are unwholesome, but I doubt that the people who drink soda water would care to have these insects in their drinks.

It has been claimed, and I myself have seen demonstrations of this fact, that if tin cans are coated with a gum—which it is said can be applied at a cost of \$4 a thousand—strawberry color and other natural fruit colors will be retained indefinitely therein. Whereas if they are placed in tin cans before prepared some galvanized action sets up—which I have now under investigation—and decolorization takes place.

I have opened cans of strawberries, put up from the same lot, in the same way, at the same time, in the same make of cans, one a plain tin and the other coated with gum as described. These cans I opened myself and carefully noted their appearance. The strawberries were considerably decolorized in the plain tin cans, while they remain of a perfectly natural color in the cans covered with gum. I then had the contents of both cans examined for artificial colors and found none.

On February 1 the following samples were examined at your request:

F No. 15730.—Huckleberries, preserved in plain can.

F No. 15731.—Huckleberries, preserved in lacquered can.

F No. 15733.—Raspberries, preserved in plain can.

F No. 15732.—Raspberries, preserved in lacquered can.

The raspberries preserved in plain can, F No. 15733, were apparently of the same variety as the sample preserved in lacquered can, F No. 15732. The latter, however, were of a natural dark red color, whereas the former were of a pale yellowish red.

The same difference in kind, but to a much less degree, was found between the two cans of huckleberries. We are unable to detect the presence of any bleaching agent, coloring matter, or any evidence of any unusual treatment in any of the samples.

It appears to me that the ethical principle against false coloring is so strong, and necessity of it so remote, as to remove this process entirely from consideration. In fact, with the exception of the gentleman who appeared here from Cleveland in favor of artificial coloring, I believe, no other witness has asked for it.

HARMFUL SUBSTANCES OCCURRING NATURALLY IN FOOD PRODUCTS.

I desire to enter here a little more extensively into the question of the occurrence of harmful substances naturally in food products. I want to show this committee that the occurrence of such bodies naturally in food products can not be taken as a warrant to add not only additional quantities, but far larger quantities than nature does at her very worst. We are not responsible for what occurs naturally in foods, and which, in so far as we know, occur there for some wise purpose—though, in so far as we know, these substances are merely incidental to growth—are abstracted from the soil or produced as an excretion product in the plant itself.

Great stress has been laid before this committee on the fact that benzoic acid occurs naturally in certain food products. If, now, this argument is a valid one, and as a result of it it is deemed proper to add additional quantities of benzoic acid to food products, then, logically, the same right must be accorded to every other substance occurring extensively in natural food products. The following substances are recorded by various observers as being present in natural food products: Copper, salicylic acid, arsenic, hydrocyanic acid, solanin, and alum.

Doctor Vaughan testified in the Senate committee of the Fifty-fifth Congress, before cited, that alum was not found in food products, but only in natural waters. This is true in so far as alum is concerned, but when we read Doctor Vaughan's testimony on alum we find he not only objects to it in the form of alum, but in the form of any of its compounds, no difference if they are of a highly insoluble nature. Therefore the presence of compounds of alum in plants would be a justification, according to the reasoning of Doctor Vaughan, to add alum to food products. A very extensive investigation has been made of the occurrence of alumina compounds in natural products.

In a book written by Charles F. Langworthy and Peter T. Austen and published by John Wiley in 1904 a complete review of the literature of the occurrence of alumina is found. I do not need to quote this book to you. I show you its size and call your attention to the hundreds and hundreds of occurrences of alumina in food products and in mineral waters. Yet it seems to me that it would be unwise and unreasonable to claim that that substance was a proper substance to add to foods simply because it occurs naturally in food

products. The authors make the following statement in their introduction:

In many instances the data found in a periodical or work of reference have been verified in the original publication so cited. All possible precautions have been taken to insure accuracy, but those who have engaged in similar work know how difficult it is to eliminate all error.

Professor Vaughan, in speaking of alum, on page 206, says:

They (the substances containing alum) are taken into the system in small quantities, it is true, but it is a harmful substance, even in small quantities, and is injurious.

Q. Is alum found in any natural product?—A. It is not found in any natural food. Of course there are waters that contain forms of alum—natural waters.

OCCURRENCE OF BORAX IN FOOD PRODUCTS.

Wine, 0.008 gram to 0.051 gram in 1 liter, found after examination of 31 different kinds by Schaffer, F. (Schweiz-Wochenschr. f. Chemie u. Pharmacie, 1902, No. 41.)

	Per cent.
Apples, fresh substance.....	0.0016
Pears, fresh substance.....	.0019
Medlars, fresh substance.....	.0018
Figs, Smyrna, fresh substance.....	.0015

Hotter, E. (Zeltschr. Nahrungsm. unters., Hygiene u. Waarenkunde, 1895, 9:1.)

Oranges. Lippman, E. O. von. (Chem. Ztg. 1902, 26:465.)

	Milligrams.
Orange juice, in 1 liter.....	4
Gooseberry juice, in 1 liter.....	10
Lemon juice, in 1 liter.....	6
Cherry juice, in 1 liter.....	4

Hebebrand, A. (Zeltschr. unters. Nahrungs- u. Genussm. 1902, 5:1044.)

	Per cent of ash.
Plum juice.....	0.27
Greengage juice.....	.21
Cherry juice.....	.34

Windisch, K., quoted by Konig, J., Chemie der menschlichen Nahrungs- und Genussmittel, ed. 4, 1904, page 967.

Habebrand reported boric acid in the salt from certain Italian and Swiss mines in quantities varying from 0.6 to 3 milligrams per 100 grams.

It is a matter of common experience that when delicate methods are used for the detection of boric acid care must be taken not to be misled by the slight traces of boric acid commonly present in vegetable products and in the ordinary reagents used in the laboratory.

Eleven samples of salts were recently obtained in the Washington markets, including the brands of table salt and dairy salt most commonly handled here. All were found to contain boric acid. Fifty samples of salts were obtained directly from the manufacturers, all of the salt regions in the United States, and all sources from which salt is manufactured being included. These samples were all found to contain boric acid.

In connection with this work it became necessary to secure a sample of salt for the sake of comparison which was entirely free from boric acid. This we were unable to secure, and found it necessary to prepare a sample of salt in the laboratory. In the preparation of this sample it was found that all of the sodium hydroxid and the sodium

carbonate in the laboratory contained traces of boric acid, and special precautions had to be taken to eliminate it entirely in the sample of salt prepared.

I also believe boric acid to be a natural ingredient in spices. The Bureau of Chemistry recently secured a number of spices from original packages at the port of New York for the purpose of determining the presence of boric acid therein. The samples have only been very recently received, and their study has not been completed. A distinct qualitative reaction for boric acid has, however, been obtained with the following:

F 15804 ginger, F 15805 pimento, F 15806 cloves, F 15807 mace, F 15808 cloves, F 15809 caraway seed, F 15810 caraway seed, F 15811 mace, F 15812 cassia, F 15814 paprika, F 15816 nutmegs, F 15817 paprika, F 15818 caraway seed, F 15819 pimento, F 15820 black caraway seed, F 15853 pimento, F 15854 pimento, F 15855 pimento, F 15856 pimento, F 15858 ginger, F 15859 ginger, F 15861 nutmegs, F 15863 caraway seed.

OCCURRENCE OF ARSENIC IN VEGETABLE COMPOUNDS.

It has long been known that arsenic is very widely distributed in nature. It has been found in appreciable quantities in a large number of vegetable products and in a wide range of animal tissues. The following quantities of arsenic were obtained by Gautier and Clausmann (C. R., 1904, 139, 101). The results given below are expressed in parts per hundred million and are calculated from the original reference given above, where they are expressed in milligrams per hundred grams.

Arsenic in parts per hundred million.

ANIMAL PRODUCTS.

Beef.....	0.8
Veal.....	0.5 to 1.0
Milk.....	.05
Egg yolk.....	.5
Gournard muscles.....	29.8
Mackerel.....	2.7 to 3.9
Lobster, muscles.....	2.2
Lobster, eggs and fat.....	35.7
Lobster, upper and lower flesh.....	104.0
Lobster, whole, live.....	45.3
Shrimps, muscles.....	.16
Shrimps, upper and lower flesh.....	7.6

VEGETABLE PRODUCTS.

Wheat.....	0.7 to 0.8
White bread.....	.7
Cabbage.....	.2
Sorrel.....	.5
Turnips.....	.36
Potatoes.....	.76 to 1.12
Potato sprouts.....	.16

BEVERAGES.

Red wine.....	2.7 to 8.9
Beer.....	.1
River water taken from spigot in Paris.....	5.0
Water from the River Seine.....	5.0

SALT.

Deposits of sodium chlorid and similar salts were found to contain from 0.7 to 45 parts of arsenic per hundred million. Arsenic has repeatedly been observed in sodium phosphate intended for medicinal purposes and in caramel. (Royal commission on arsenical poisoning arising from the consumption of beer and other articles of food and drink, vol. 1, appendixes 1-15, inclusive, p. 137; see also Bureau of Chemistry Bulletin No. 80.)

The question of arsenic in barley is one which has not been satisfactorily settled. It is stated in some of the testimony taken by the English royal commission on arsenical poisoning that arsenic does not occur in barley (*ibid.*, 309), while other witnesses claimed that arsenic was present. Again, in testimony given before the same commission (*ibid.*, vol. 2, appendixes 16-32, p. 10):

The evidence before the commission referred to contains a large amount of information regarding the appearance of arsenic in plants. A considerable amount of difference of opinion developed regarding the occurrence of arsenic in certain plants, as, for instance, in barley. Some witnesses, however, reported the detection of arsenic in a number of other plants.

ARSENIC IN HOPS.

Thirty-seven samples of hops received from E. Clemens Horst Company, of 122 Battery street, San Francisco, Cal., were examined, and 23 were found to contain arsenic (As_2O_3).

Of the 37 samples, 8 were found to contain more than 1.4 parts per million, which is considered (at present) allowable by the English authorities. The 8 contained, respectively, 2, 10+, 3, 3, 2, 2, 2, and 4 parts per million.

HYDROCYANIC ACID IN FOOD PRODUCTS.

	Per cent.
Sweet cassava root ^a	0.0168
Mean, maximum ^a .....	.0238
Bitter cassava root ^a .....	.0275
Mean, maximum ^a .....	.0442
Peach kernels ^b .....	.17
Plum kernels ^b .....	.056
Apple pips ^b .....	.035

Bitter almonds, service tree fruit, cherry kernels. Blyth. A. W. Poisons; ed. 3, 1895: 195.

Blyth states that hydrocyanic acid is found in many plants besides those he enumerates.

Sorghum, 2.4 grams per pound of green material; 13.4 grams per pound of dry material. Brunnich, J. C. Queensland Dept. Agr. Rept. 1903-4: 72-79.

Currants, red and black, traces found by Hebert, A. (Bul. Soc. Chim. de Par. 1898 [3] 19: 310-313.)

Maize, fodder and green plant. Brunnich, J. C. (Jour. Chem. Soc. Lond. 1903, 83: 788-796).

^a Francis, analyst 1878, 2: 5.

^b Blyth, A. W. Poisons; ed. 3, 1895: 195.

C. C. Moore, Bureau of Chemistry, has made an analysis of an extensive series of samples of cassava roots, and has found results varying as follows:

Florida Sweet, 1 to 2 parts per 100,000.

White Top, the most common bitter variety, 30 parts per 100,000.

SOLANIN IN FOOD PRODUCTS.

Potato, especially in the peelings and sprouts, but in all parts of the plant, according to König, J., *Chemie der menschlichen Nahrungs- und Genussmittel*, ed. 4, 1904, V. 2:93.

Blyth says none occurs in healthy potatoes. (Blyth, A. W., *Poisons*, ed. 3, 1895, p. 385.)

Kassner says he has separated 30 to 50 milligrams from 150 grams of diseased potatoes. (*Archiv. Pharm.* [3], 25:402.)

Lime, magnesia, iron, manganese, and many other substances whose artificial compounds are harmful to health, also are found generally occurring in food products.

COPPER IN FOOD PRODUCTS.

Dr. Victor Vedrodi has found copper in the substances given below. (*Chemiker Zeitung*, 1896, 20:399-400.)

[Parts per 1,000,000.]

Winter wheat.....	200 to 680
Spring wheat.....	190 to 230
Barley.....	10 to 70
Oats.....	40 to 200
Buckwheat.....	150 to 160
Peas.....	60 to 110
Mustard seed.....	60 to 70

K. B. Lehmann has found copper in the substances given below. (*Archiv. für Hygiene*, 1895, 24:18.)

[Parts per 1,000,000.]

Grains.....	1.5 to 12.5
Bread.....	2.5 to 11.5
Vegetables and fruit.....	0.5 to 9.0

Warm-blooded animals in the different organs, 0.003 to 33.6.

Oysters, herrings, lobsters, etc., 2.5 to 16.

Blyth, A. W. (*poisons*, ed. 3, 1895: 612-614) says copper is widely distributed in the vegetable kingdom and is a constant constituent of the foods we consume.

[Grains, parts per 1,000,000.]

Wheat.....	5.2 to 10.8
Rye.....	5.0
Oats.....	8.5
Barley.....	11.8
Rice.....	1.6

[Parts per 1,000,000.]

Bread.....	1.5 to 4.4
Vermicelli.....	2.0 to 10.0
Potatoes.....	1.8
Beans.....	2.0 to 11.0

Copper has been found in similar small quantities in carrots, chicory, spinach, hazelnuts, blackberries, peaches, pears, figs, plums, tamarinds, black pepper, and many other fruits and spices. Cocoa has a high copper content, 12 to 29 parts per 1,000,000.

The ordinary daily food of an average man contains copper as follows:

	Milligrams.
900 grams bread.....	0.45
260 grams meat.....	.25
200 grams fruit and vegetables.....	.25
Total.....	.95

Copper is found in brandies, wines, and in aerated waters.

SALICYLIC ACID OCCURRING NATURALLY IN FRUIT.

Substance.	Amount in 1 kilogram of fruit (Mg.).	Analyst.
Apples.....	None	Süss. ²
Do.....	Amount not determined	Traphagen and Burke. ¹
Apricots.....	None	Windisch. ³
Do.....	Amount not determined	Traphagen and Burke. ¹
Blackberries.....	None	Utz.
Do.....	do	Süss. ²
Cherries.....	Amount not determined	Traphagen and Burke.
Do.....	0.40	Do.
Cherries, wild.....	None	Süss. ²
Cherries.....	20.0-30.0	Jablin-Gonnet.
Do.....	None	Windisch. ³
Crabapples.....	0.10-0.21	Desmoulières.
Cranberries.....	0.24	Traphagen and Burke. ¹
Do.....	None	Süss. ²
Currents.....	0.15-0.35	Bigelow.
Currents, red.....	0.57	Traphagen and Burke. ¹
Do.....	None	Süss. ²
Currents, red, white, black.....	do	Utz.
Gooseberries.....	do	Windisch. ³
Do.....	do	Süss. ²
Gooseberries, red and white.....	do	Utz.
Grapes.....	0.32	Windisch. ³
Greengages.....	None	Traphagen and Burke. ¹
Do.....	do	Süss. ²
Mahonia berries.....	do	Windisch. ³
Peaches.....	do	Do.
Do.....	Amount not determined	Traphagen and Burke. ¹
Pears.....	None	Süss. ²
Plums.....	do	Do.
Do.....	do	Windisch. ³
Raspberries.....	0.28	Traphagen & Burke. ¹
Do.....	None	Süss. ²
Do.....	Amount not given	Utz.
Do.....	1.1	Windisch. ³
Strawberries.....	Amount not determined	Traphagen & Burke. ¹
Do.....	2.0-3.0	Süss. ²
Do.....	Amount not given	Utz.
Do.....	2.8	Windisch. ³
Do.....	1.0	Portes & Desmoulières.
Do.....	Reaction	Mastbaum.
Do.....	Amount not determined	Traphagen & Burke. ¹
Wine.....	0.0-0.825	Mastbaum.
Do.....	0.9	(?)

¹ Jour. Amer. Chem. Soc., 1903, 25: 242-244.

² Zts. für angewandte Chemie, 1902, 15: 1041.

³ Zts. für Untersuchungen der Nahrungs- und Genussmittel, 1903, 6: 447-452.

ALUMINA COMPOUNDS IN FOOD PRODUCTS.

Flour, 0.017 to 0.024 per cent. Bell, J. Carter (analyst, 1879, 4: 162-133).

Grape juice, 3.85 per cent of ash. Bell, J. Carter (analyst, 1881, 6: 197-201).

Wine, port, unfermented, 3.956 per cent of ash. Bell, J. Carter (analyst, 1881, 6: 197-201).

Wine, Deidesheimer, 0.971 per cent of ash. Bell, J. Carter (analyst, 1881, 6: 197-201).

(Alumina Al_2O_3).

- Sweet potato, trace. Herapath, T. J. (*Jahresb. Chem.*, 1850: 647).
 Blueberries, dry, 0.005 per cent. Kayser, R. (*Jahresb. Chem.*, 1883: 1407).
 Cherries, May, 2.55 per cent of ash. Keim, W. (*Ztschr. analyt. Chem.*, 1891, 30: 401).
 Wine, natural, 0.03 gram per liter. Sestini, F. (*Chem. Centralb.*, 1887: 939).
 Wheat, winter, 0.11 per cent of ash. Teller, G. L. (*Arkansas Expr. Sta. Bul.* 42: 75).
 Pea (*Soja hispida*), 0.053 per cent of ash. Yoshida (*Jour. Chem. Soc. London*, 1887, 51: 748).
 Red bean (*Phaseolus radiatus*), 0.268 per cent of ash. (*Jour. Chem. Soc. London*, 1887, 51: 748).

Alumina Al_2O_3 .

- Rice, 0.189 per cent of ash. Yoshida (*Jour. Chem. Soc. London*, 1887, 51: 748).
 Millet, 0.272 per cent of ash. Yoshida (*Jour. Chem. Soc. London*, 1887, 51: 748).
 Buckwheat, 0.113 per cent of ash. Yoshida (*Jour. Chem. Soc. London*, 1887, 51: 748).
 Red grapes, from 479 grams was obtained 0.013 grams alumina. L'Hote (*Compt. rend. Acad. Sci. Par.*, 1887, 104: 853).
 Langworthy and Austen. The occurrence of aluminum in vegetable products, animal products, and natural waters. N. Y., 1904.

The occurrence of alumina in vegetable products and natural waters is exhaustively treated by Austen and Langworthy in a book lately published on that subject.

THE ARGUMENT OF SMALL QUANTITIES.

The principal argument which has been adduced in favor of the use of preservatives and coloring matters is not one which denies that they are harmful substances, but that they are used in such small quantities. This question was thoroughly discussed by Professor Shepard, of South Dakota, in an address delivered before the National Association of State Dairy and Food Departments at St. Paul, Minn., in July, 1903, and published on page 542 and following, of the proceedings of that meeting. Professor Shepard shows by data of unquestionable accuracy that in an ordinary breakfast where preservatives are permitted in foods 8 doses of chemicals and dyes may be easily consumed. For dinner he shows in detailed data that there may be 16 doses. For supper he shows that there also can easily be taken 16 doses, making a total of 40 doses in minimum quantities which any ordinary individual may easily consume in a day. He says:

The only palliation that I have heard manufacturers offer for the use of chemical preservatives is that only minute quantities are used in any one food product, so that at the most a person would take only a minute dose at one meal. It is evident that such manufacturers are not homeopaths. I believe, personally, that when enough of a preservative is used to accomplish the desired end more than a homeopathic dose is taken by the patient. * * *

According to this menu, then, the unconscious and unwilling patients get 40 doses of chemicals and colors per day. Even if he should introduce quite a variation he would be as likely to increase the dosage as he would to diminish it. During the year he would unconsciously take 14,600 doses.

Now, it might be possible that the system could adapt itself to one kind of poison after a time, but what must the poor, disgusted, digestive enzymes think of the terrible array of poisons gathered in the foregoing and not unreasonable menu? A Chinese dose of medicine is a simple affair beside the list just given.

But what of a remedy for this lamentable state of affairs? It must come through wise laws rigidly enforced. The public must be better educated, so they will not buy embalmed foods. And every encouragement must be given to our honest manufacturers, for, thank God, we do have manufacturers who are putting out wholesome

goods. If any food product now on the market can not be successfully put out without the use of coloring matter and antiseptics it should be banished at once from our American dietaries.

The people are looking to our food and dairy commissioners for protection for themselves and their children. May they have strength and wisdom.

It is only fair to state, in regard to Professor Shephard, that he is one of those agricultural chemists who are the *bête noirs* of the food manufacturer. He is a man to whom special objection is taken by Mr. Lannen, as is found in his testimony on page 184. He (Lannen) is anxious that the execution of this law should be transferred from the Department of Agriculture to the Department of Commerce and Labor. He says:

We consider that this is a matter of public health, and that they should deal with it. It has been our experience that the doctors of the country are fairer than the agricultural chemists.

The testimony, however, which is laid before you from one of the most prominent physicians of England would, I think, induce Mr. Lannen to seek some other jury than the physicians of this country. Especially is this the case when we remember that the American Medical Association, through its legislative committee, is petitioning this Congress to pass the Heyburn-Hepburn bill. However, I should say that Mr. Lannen's high opinion of the physicians of the country ought to modify to some extent his violent opposition to the Chief of the Bureau of Chemistry, who is not only a physician, but who also holds one of the highest and most responsible offices in the gift of the American Medical Association, namely, as a member of the council on pharmacy and chemistry of this organization.

I desire also to call the attention of the committee to the discussion of this subject in Bulletin 84, Part I, page 257.

PUBLICITY OF FINDINGS.

A great deal has been said here against publicity respecting the findings of the chemists in prosecutions to be brought under this act. Mr. Lannen says, page 211:

The object of that, Mr. Chairman, is this: That every man is entitled to his day in court, and that a man's character and the character of a man's goods are just as much his property as is his life or his liberty, under the Constitution of the United States. And that a man has a right to a trial in a court of justice before he is injured by any public official. And, moreover, if you permit an officer enforcing a food law, as the State food commissioners are doing now, to determine facts and interpret laws, then there is not any use in maintaining a judicial department of this Government.

The answer to this objection was well given by members of the committee at the time. It seems to me, however, that some concession might be made in this point to this effect, that no publication should be made until an indictment is returned. Whenever an indictment is returned the matter then becomes public and no harm can come from publication. No publicity should be given to offenses of this kind until the final determination by the courts; as was well pointed out, it might be years after the offense was committed before the public would have any knowledge of it. It often takes years to secure a decision from the Supreme Court. The value of publicity, it seems to me, is well shown in the appended editorial from the Chicago Tribune of February 8, 1906:

THE VALUE OF PUBLICITY.

Several food manufacturers have visited the office of the Illinois Pure Food Commission to protest against the publicity now being given to analyses of prepared foods which have been found to contain adulterants or poisonous preservatives. They say that a continuance of such publicity will ruin them. And no doubt it will unless they quit putting adulterants and poisons into their commodities. Most people do not choose to be defrauded or poisoned, and will cease buying articles which are not what they purport to be or which may be injurious to health as soon as they learn the facts. The manufacturers and vendors of impure foods fear publicity more than anything else, and with good reason, for it is their most dangerous foe. It is the most dangerous foe of most people who profit by robbing or duping the public.

If the pure-food commission does its duty it will pay no attention to the protests of interested manufacturers. Their position is untenable and absurd. It is, in effect, that people have no right to know what they buy and eat. One manufacturer said the State pure-food law is "unconstitutional." Every individual has a right to know what he buys and eats, and the individuals composing a State have an equal right, if they wish, collectively to maintain a bureau to find out and tell them what they are buying and eating. If the manufacturers think the law is not valid let them try to get the courts to set it aside. Good lawyers will tell them they can not succeed in the attempt, and that they are quite certain not to get permanent judicial protection from the kind of publicity which is now troubling them.

The Illinois Pure Food Commission is open to severe criticism not for making and publishing analyses of impure foods now, but for not beginning to make and publish them four or five years ago. If it had begun to enforce the pure-food law as soon as it went into effect the manufacturers would long ago have ceased to protest against the measure and commenced to obey it, and the shelves of the grocers would not still be full of unlawful and deleterious commodities. It is the consumers and not the producers of prepared foods who should be venting their wrath upon the commission. Having been permitted for years to profit largely by disregarding the law, it would seem that the manufacturers of adulterated food stuffs should now be willing to begin obeying it without loudly complaining about the effects of its operation.

KEEPING FOODS AFTER OPENING THE PACKAGE.

A point which has been insisted upon by a number of witnesses before the committee is the following, namely: That while it is possible to produce every kind of food which is suitable for preservation by sterilization and to sterilize it thoroughly and thus keep it indefinitely, such foods when opened and entering into consumption tend rapidly to decay; therefore it is important that they should contain a preservative substance which will prevent them from decay.

Let us accept, for the moment, the statement just made. Why, then, may I ask, is it necessary to require manufacturers of food to sterilize at all? It is undoubtedly a great deal cheaper to sterilize by the use of chemical preservatives, and inasmuch as the foods must have them anyway the expense of sterilization seems to be wholly unnecessary. I think I may be able to show this committee, however, that the statement which has been made is not in conformity with known facts.

A few years ago the makers of cane sirup in Georgia and other parts of the South justified the use of sulphurous acid during the course of manufacture, on the ground that the sirup would not keep through the summer otherwise. Under authority of Congress the Department of Agriculture made an extensive series of experiments in Georgia for the purpose of indicating if it were possible to make a palatable and durable cane sirup without the use of a chemical of any description, not even lime. The work has continued for three years and has resulted in a complete demonstration of the possibility of making not only a palatable, but highly palatable, product without the use of any chemical, and further, that this product will keep during the hottest summers in barrels without any tendency to fermentation.

We have in the storerooms of the Bureau of Chemistry two barrels of such sirup made three years ago which have been kept in the ordinary vicissitudes of temperature during the whole of this period and have developed no indications of fermentation. In order that such sirup may be used from the barrel little by little, or from any other package, the agricultural experiment station of Louisiana, at Audubon Park, has developed a device by means of which a small portion of the contents of the barrel, as small as may be desired, may be withdrawn and sterilized air entered to take its place through a plug of sterilized cotton in such a way that it is impossible to introduce a single fermentative germ into the product. A single device of this kind attached to a bottle of catsup would enable it to be used, little by little, for a period of a year or more without any possibility of deterioration.

One such apparatus, which would cost only a few cents, could be used on bottle after bottle. This device is described in full in Bulletin No. 75, second series, of the agricultural experiment station of Louisiana, published in 1903, and found on pages 256 and following. The device is of such exceptional interest in this case that I submit a full description thereof, together with a figure illustrating its construction. Some modification of this form would doubtless be necessary for use on bottles of catsup, but there is no doubt in the world of its applicability to this purpose. Thus this small attention to detail on the part of the consumer would remove all the reasons which have been advanced before this committee to permit the use of preservatives in catsups.

SPECIAL DEVICE FOR KEEPING SIRUP IN A STERILE CONDITION.

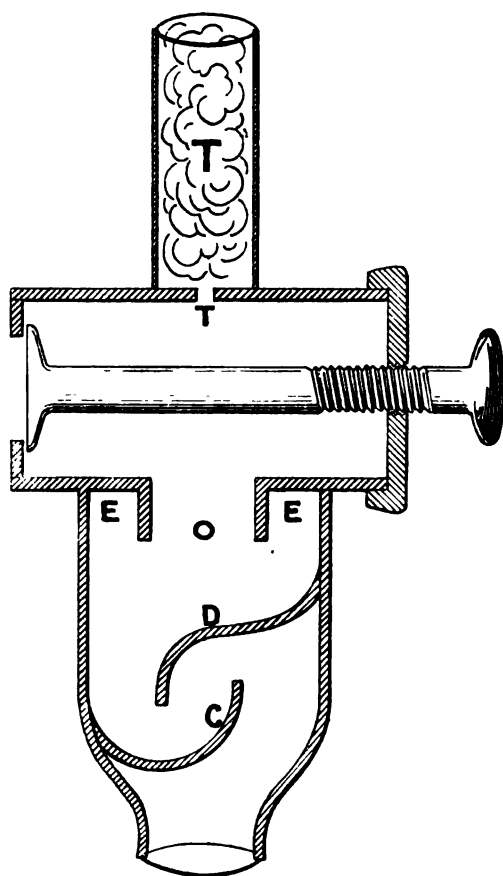
[By W. R. Dodson.]

PART III.

Preserving sirup in small tin or glass vessels necessitates a large expenditure for the vessels alone when the work is to be done on an extensive scale. To reduce this expense we have been endeavoring to secure a means of withdrawing at will a small quantity from a large vessel of sterilized sirup without destroying the sterile condition of what remains. It seems that we have in a degree been successful from an experimental standpoint, and it is not improbable that commercial use may be made of the device when somewhat improved as to detail of structure from a mechanical standpoint.

The aim has been to accomplish, primarily, three conditions: (1) To attach the faucet and sterilize it with the filled vessel and seal it so the interior will remain sterile till ready to withdraw the sirup; (2) when the sirup is withdrawn to filter the air that replaces it in the vessel through sterilized cotton; (3) to prevent ferments from reaching the valve seat of the faucet by growing in sirup adhering to the sides of the faucet or in currents of unfiltered air set up by the flow of the sirup. By taking a type of faucet commonly used in cisterns and making two additions we can give the principle upon which the work is based. The diagram illustrates a cross section of the faucet.

By drilling a small hole on the upper side of the faucet at *t* and attaching a tube about one-half inch in diameter *T*, which is to be filled with cotton and a cap placed on the top, we make the filter for filtering the air which enters the faucet. The attachment at the bottom of the faucet has two diaphragms, arranged so as to make the current of flow take a circuitous route, the bottom of the upper diaphragm *D* extending a little below the upper edge of the lower diaphragm *C*, so that when the flow stops the cup above, *C*, will remain full and *D* will intercept the passage of air back to the valve. Any variations in the volume of air in the faucet will be accommodated by air passing through the tube *T*, and there will not be material pressure, negative or positive, except in the recess at *E*. Should the sirup rise so as to close the primary outlet *O* of the faucet there will remain an air cushion *E*, which



will not be filled with sirup, as there is no way for the air to escape. When the sirup runs out sufficiently, or the valve is closed, the flow of sirup will break at O, leaving it disconnected from the lower part of the faucet, as far as a nutritive surface for growth of ferments is concerned. Ferments may work up the sides of the diaphragm, but when they reach the surface at E there is no longer material for them to feed on, and development stops. In some instances thread fungi might span the distance and start new threads that would eventually find their way to the valve seat. After the faucet is once opened it must remain in position till all the sirup is withdrawn. Fermentation may take place in the small cup over C, but ferments would not be carried from the surface of the fluid by what air currents would result from the starting and stopping the flow of sirup, and at any rate only moulds would produce spores above the surface.

By this arrangement the flow of sirup is intercepted while air bubbles are passing back into the vessel, and for this reason it is better to provide a separate tube filled with sterilized cotton to admit air to the upper portion of the vessel.

With this kind of faucet we have kept cane juice for weeks, as long as attempted, without fermentation, and sirup was kept over summer with but slight fermentation. The test made, however, was not conclusive, as it was found that the cans had leaked a little, and had possibly admitted ferments in other ways than through the faucet. The cans were 5-gallon size, made of thin tin, and rather frail for so great a weight of sirup.

Serious objection to this form of faucet is that it must be attached before the sirup is sterilized, and in its present form it would be in the way in handling vessels to which it is attached. We hope to modify it so as to place it entirely within the vessel, or nearly so, so that it will not be in danger of damage during shipment.

It would seem that there should be nothing to hinder preserving sirup in large tanks by sterilizing the tanks and introducing the sirup in a sterile condition while hot from the pans, and by admitting air only through sterilized cotton and using this kind of faucet for drawing off the sirup the supply could be drawn at pleasure, and fermentation in the bulk prevented as long as may be desired. We hope to be able to secure the necessary equipment in the near future for trying this experiment.

I am confident in telling this committee as a result of practical demonstration that all this argument which has been presented here to show the necessity of preservatives for the reasons above stated is absolutely groundless. It does not rest upon a single statement of fact which is worthy of consideration, nor is it supported by any scientific evidence worthy of that name. Even without the device mentioned above a bottle of catsup carefully opened, a small portion withdrawn, and immediately restoppered with a sterilized cork could be kept for many days without any danger of fermentation. I for one shall be glad to see the day when the gummy and sticky and nasty catsup bottle which we now find upon the tables often of the restaurants and in the domestic circle shall give place to a thoroughly sterilized, sanitary, and proper method of preserving catsup of this kind.

I present to the committee two bottles of catsup which have been in the care of this Bureau for nearly two years and which have not exhibited a single indication of fermentation. They were prepared on September 19, 1903. I also present another bottle of catsup bought in the open market in Washington on February 19, 1906, which has been opened in the Bureau for the purpose of determining whether the statement on the bottle is a correct one. We examined this sample for salicylic and benzoic acid and for any other preservative extractable by ether and found none. Of course we could not in the contents of a single bottle examine for every known preservative, and therefore we could not state that there is no preservative of any kind here, but we find in so far as the common preservatives are concerned that the statement of the manufacturer is true, and we have no reason to call it in question.

In this connection also I submit a letter from the manufacturer, which is as follows:

PITTSBURG, U. S. A., *February 19, 1906.*

W. D. BIGELOW, *Acting Chief,
United States Department of Agriculture,
Bureau of Chemistry, Washington, D. C.*

DEAR SIR: Answering your inquiry of February 14, we have during the past year been working along the lines of our conversation with you at St. Paul and elsewhere, and you will be interested to know that we put up 150,000 dozen of one size catsup which was preserved entirely by sterilization. This was a small size and it gave a sufficient degree of general satisfaction so that we shall probably feel warranted in doubling this quantity in our 1906 pack. We experienced some difficulty with the larger sizes of packages put up in this manner and have had some complaint from consumers of spoilage concerning all packages, but not enough to amount to much with relation to the package above referred to, which held about 8 ounces.

With relation to the extension of this method to our larger packages, we have been looking to your Department to do something along the lines of helping us out and determining the practicability of various processes, and had hoped we might hear something from you before this time relative to experimentation on your part along the same or similar lines. Perhaps the best expression of our opinion as to the practicability of the process will be found in our statement that we will double the quantity preserved by sterilization in 1905 during the coming year.

Thanking you for your inquiry, we are,

Yours, very truly,

H. J. HEINZ COMPANY.

I also submit a letter from John Duncan's Sons, the manufacturers of Lea & Perrins's sauce in this country. These manufacturers, in view of the inhibition of preservatives in many States, have decided to make a sauce absolutely free of a preservative. Several weeks ago, before this discussion came up at all, I had a letter from the firm informing me of the fact, which unfortunately I mislaid. I therefore addressed them again, asking them to repeat to me what they said on a former occasion, and have received from them in response the following communication:

NEW YORK, *February 23, 1906.*

Dr. H. W. WILEY,
*Chief of the United States Bureau of Chemistry,
Department of Agriculture, Washington, D. C.*

DEAR SIR: We are this morning in receipt of your letter of the 21st instant, and we note as you desire a reply by this afternoon we are sending this by a special delivery. We wired you: "Your letter received this morning; mailing reply by special delivery."

We note in your favor you wish us to repeat the statement that we no longer use any kind of preservatives in Lea & Perrins' sauce, and that you have mislaid a former communication treating on this subject.

We take pleasure in again advising you that there is not a bottle of Lea & Perrins' sauce issued by us to-day which contains antiseptics of any nature. We trust that this information will serve your purpose; but should you desire some samples of the sauce, we will be glad to send them to you, or our Mr. Duncan will be pleased to give you a personal interview at your office, should you desire any further particulars.

We beg to remain, dear sir, yours, very truly,

JOHN DUNCAN'S SONS.

It has also been stated that meats can not be preserved and shipped great distances without the use of borax. I have already called attention from the English departmental evidence to the fact that such is not the case. I call attention now, however, to a very important contradiction of that statement, namely, the business transactions of the packers of meats in this country intended to be sent to Germany. The German law prohibits the addition of any quantity of borax to food products of any kind, and they have a very strict inspection of all imported meats especially. The following data have been given me

respecting the quantities of preserved meats sent from this country to Germany during the years 1904 and 1905.

Data obtained from the section of foreign markets of the Bureau of Statistics regarding the preserved meat imported into Germany in the years 1904 and 1905:

*Prepared meats of various kinds—hams, bacon, salt pork, etc., and corned beef and veal
salled.*

	Pounds.
Total, 1904.....	22, 154, 200
From United States.....	9, 573, 400
Total, 1905.....	46, 824, 800
From United States.....	30, 024, 500

It is seen by this that the quantity of preserved meats containing no borax sent to Germany in 1905 was more than three times as great as that in 1904, and that of the total quantity of preserved meats of the kinds mentioned imported into Germany in 1905, namely, 46,824,800 pounds, 30,024,500 pounds came from the United States and contained no added borax.

(3) OPPOSITION TO THE METHOD OF ENFORCING THE ACT AND (4) OPPOSITION TO THE OFFICIALS WHO MAY ENFORCE THE ACT—FOOD STANDARDS COMMITTEE.

So much has been said respecting the inefficiency of the food standards committee and the character of its work that I have taken some pains to bring before this committee a rather full statement respecting the whole matter.

I give first the history of the appointment of this committee, its personnel, who appointed it, and for what purpose it was appointed.

HISTORY OF THE COMMITTEE ON FOOD STANDARDS, ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS.

[12th Convention, Bul. 47, Division of Chemistry, p. 129.]

On suggestion of Mr. Mitchell, Mr. Van Slyke, Geneva, N. Y., that a committee of three on legislation of adulterated foods be appointed, Mr. B. B. Ross, as the incoming president, appointed the following committee:

Mr. H. W. Wiley, Washington, D. C.; Mr. H. A. Huston, Lafayette, Ind.; Mr. John A. Myers, Morgantown, W. Va.; Mr. A. S. Mitchell, Milwaukee, Wis.

This committee known as "committee on pure-food legislation."

[14th Convention, Bul. 51, p. 139.]

Following motion was made by Mr. Bartlett, as chairman of committee on recommendations of referees:

The committee recommends that the report of the referee on food adulterations and standards of purity and the whole subject of food adulterations, including dairy products, be referred to a committee of five, to be appointed by the incoming president, such committee to have subcommittees and to refer methods and standards to the next meeting of the association.

In accordance with this motion Mr. A. L. Winton, New Haven, Conn., appointed the following committee:

Messrs. H. W. Wiley, Washington, D. C.; H. A. Weber, Columbus, Ohio; M. A. Scovell, Lexington, Ky.; E. H. Jenkins, New Haven, Conn.; William Frear, State College, Pa.

This committee has served until the present time, with the exception that in 1901 Doctor Frear succeeded Doctor Wiley as chairman and continues to hold that office.

In the appropriation bill for 1903 this committee was recognized by Congress as the official advisor of the Secretary in the following clause:

to enable the Secretary of Agriculture, in collaboration with the Association of Official Agricultural Chemists, and such other experts as he may deem necessary, to establish standards of purity for food products and to determine what are regarded as adulterations therein, for the guidance of the officials of the various States and of the courts of justice. * * *

I have already stated to the committee the peculiar qualifications which the four members of the committee (excluding myself) have for the work entrusted to them.

DISCREDITING THE COMMITTEE ON FOOD STANDARDS.

Persistent attempts have been made for a long time to discredit the food standards committee. Especially has it been said that the State dairy and food commissioners were opposed to it. To determine that point I addressed to them the following letter:

DEAR SIR: The following statement taken from *The Retailers' Journal* for February, 1906, page 27, is going the rounds of the press and the part referring to food standards has been presented to the Committee on Agriculture of the House of Representatives by Mr. Warwick W. Hough:

"The State food commissioners who are giving their support to this bill (referring to the Lorimer bill, H. R. 13853) assert that no other national food law is needed. They declare, in addition, that Doctor Wiley's food standards are impractical, and assert in reply to the demand for uniform food standards that the commissioners of the various States which have pure-food laws already have under way plans to insure such uniformity in the State laws."

This matter will soon come up again before the Committee on Interstate and Foreign Commerce of the House, and I would like to get a statement over your own signature relating to the above matter which may be presented to the committee.

In your opinion are the food standards as proclaimed by the Secretary of Agriculture impractical?

I am sending you a copy of the food standards under separate cover.

The above question is asked simply for information, in order that we may know the exact status of the food commissioners, and is not asked for any purpose of securing any commendation of the standards already proclaimed by the Secretary of Agriculture further than the simple answer to the question above.

I am, respectfully,

H. W. WILEY.

To this letter I received the following replies:

NORTH DAKOTA AGRICULTURAL COLLEGE,
February 15, 1906.

DR. H. W. WILEY,
Department of Agriculture, Washington, D. C.

DEAR SIR: Replying to your favor of February 10 with regard to my attitude toward the so-called Lorimer bill, you will find a statement in *The American Food Journal*, Vol. I, No. 1, for January, 1906, on page 14. I am opposed to that bill and in favor of the Heyburn and McCumber bill. The Lorimer bill is not at all satisfactory for food commissioners who desire a fair, impartial enforcement of a good pure-food law. I am in favor of a food standard as compiled by the Secretary of Agriculture. I am not in favor of the provisional standard which was gotten out by Mr. Eaton, of Illinois, and claimed to be authorized by the food commissioners and in which my name was used as a member of the committee without authority from myself.

As showing my attitude in this matter I inclose a copy of a letter recently sent to Professor Hortvet, of the Minnesota food commission.

Yours, very truly,

E. F. LADD, *Food Commissioner.*

NORTH DAKOTA AGRICULTURAL COLLEGE,
February 9, 1906.

Prof. JULIUS HORTVET,
Dairy and Food Commission, St. Paul, Minn.

DEAR SIR: Replying to the questions asked by you concerning food standards, I may reply as follows:

First. I am in no way responsible for the set of standards prepared and submitted to the Association of Food Commissioners at their last annual meeting. These standards contain many features that are entirely objectionable and, it seems to me, were drawn more in the interests of the manufacturer than for the protection of the consumer. Personally I would favor adopting the provisional standards prepared under the supervision of the Secretary of Agriculture. Members of our association have had a voice in the formation of this standard, and if when finally adopted there are features which are found to be objectionable we can point out the necessity for revision in those particulars, and should the authorities then fail to do so we then have still the right to establish such standards as we may choose.

I would adopt this standard for the further reason that they are already in use in several States and made compulsory by statutory enactment. They are also used in the judging of the purity of food products which enter this country from abroad. Therefore to adopt standards different from these would mean the introduction of many new difficulties which, it seems to me, for the present at least, are wholly unnecessary in the enforcement of the existing food laws.

I trust that steps will be taken by your committee to harmonize the work of preparing standards proposed to be undertaken by your committee with that which has already been outlined by the committee working under the authority of the Secretary of Agriculture.

Yours, very truly,

E. F. LADD,
Food Commissioner.

TENNESSEE STATE BOARD OF HEALTH,
Nashville, February 20, 1906.

H. W. WILEY,
United States Department of Agriculture.

DEAR SIR: In behalf of the Tennessee State board of health permit me to say that I have had the pure-food subject in hand for years. I consider that your food standards are as fair and reasonable as it would be possible to make them, and the only man to whom they could be "impractical" would be the willful adulterator.

Any attack on those standards can be explained under the guise of unfamiliarity or dishonesty.

Sincerely, yours,

LOUIS LEROY.

DAVENPORT, WASH., February 15, 1906.

Prof. H. W. WILEY,
Washington, D. C.

DEAR SIR: Yours of the 10th instant received. In reply to your question "In your opinion are the food standards as proclaimed by the Secretary of Agriculture impractical?" I simply answer, "No."

In further explanation of my attitude in this matter allow me to state that in compiling a few rulings for the use of this office and the trade in the State I copied in their entirety, when essential to my purpose, the food standards as adopted by the Secretary of Agriculture. In fact I used no other definitions, giving full credit in each case to your standards.

Trusting I have made the attitude of this department clear, I am,

Very truly, yours,

L. DAVIES.

ROBINSON, ILL., February 12, 1906.

Dr. H. W. WILEY,
Chief of the Bureau of Chemistry, Department of Agriculture, Washington, D. C.

DEAR SIR: Your letter of February 10 to hand stating that the "State food commissioners who are giving their support to this bill (referring to the Lorimer bill, H. R. 13853) assert that no other national food law is needed, and they declare in

addition that Doctor Wiley's food standards are impracticable and assert, in reply to the demand for uniform food standards, that the commissioners of the various States which have pure-food laws already have under way plans to indorse such uniformity in the State laws."

In reply to same will say that I have never indorsed the Lorimer bill referred to. You will remember that I, along with Commissioner Hamilton, of Pennsylvania; Commissioner Blackburn, of Ohio; Commissioner Allen, of Kentucky, and Commissioner Noble, of Connecticut, along with yourself appeared before a committee of the House in support of a national food law.

For the past five years I have been a member of a special committee on legislation appointed by the National Association of State Dairy and Food Departments to secure a national food law, and, as you know, have made several trips to Washington in the interest of the national law, and from all I can learn it seems that the present bill, which is being championed by Senators McCumber, of North Dakota, and Heyburn, of Idaho, and is commonly known as the Hepburn-Heyburn-McCumber pure-food bill, has the best chance of passage of any of the other food bills.

I am in favor of it for the reason that it fixes and authorizes your Department to fix standards, make rulings, etc., so that the commissioners of the different States can recommend to their respective legislatures a similar law and thus obtain a uniformity of rulings throughout the United States.

If there is anything I can do to assist in securing the passage of this bill I would take pleasure in cooperating with you in any way I can in the matter.

As you will see from my last annual report that is now in the hands of the State printer of Illinois and will be ready for distribution about the 1st of April, I have substantially indorsed the standards fixed by the Department of Agriculture and embraced them and have had them printed in my annual report, stating that they are the standards as adopted by the Bureau of Chemistry in the Department of Agriculture and promulgated by Secretary Wilson as the legal standards for the Department of Agriculture.

When the committee met at the Great Northern Hotel at Chicago last fall to fix standards, I assured this committee of my sympathy with them in the work and that the Illinois commission would work in harmony with their committee.

I have no sympathy with the attack made upon you by the magazine or food journal called the American Food Journal, published in Chicago.

As I wrote you some six months ago, I think you have brought about a great many reforms and accomplished a great deal, and that you have done much to bring about a better condition of affairs in the food markets of the United States, and that you have guarded the interests of the people along food lines as faithfully as you could with the resources at your command.

I want to state further that Dr. E. N. Eaton, State chemist of Illinois, does not reflect my views in the American Food Journal referred to nor in any of his interviews in regard to you or your position at the head of the Bureau of Chemistry.

I write you thus fully that you may understand the situation in Illinois, and want to assure you not only of my sympathy but support.

Sincerely yours,

A. H. JONES.

FEBRUARY 12, 1906.

Dr. H. W. WILEY,
United States Department of Agriculture, Washington, D. C.

DEAR DOCTOR WILEY: I have yours of the 10th, inquiring whether, in my opinion, the food standards proclaimed by the Secretary of Agriculture "are impractical."

I can best answer your question by saying that they have already been adopted for use, in connection with our food law, in this State, and we find them practical, helpful, and even necessary in our work, both in the execution of the law and in advising manufacturers of food products who wish to comply with the spirit as well as the letter of the law.

Very truly, yours,

E. H. JENKINS.

STATE OF IOWA, OFFICE OF DAIRY COMMISSIONER,
Des Moines, February 12, 1906.

Dr. H. W. WILEY,
Washington, D. C.

DEAR SIR: I have at hand your letter of February 10, asking me specifically to state whether, in my opinion, the food standards, as proclaimed by the Secretary of Agriculture, are impractical.

So far as I am able to judge, these food standards, with two exceptions, are both accurate and practical. In my opinion the standard on butter should be 80 per cent butter fat, instead of 82½ per cent; and on milk should be 3 per cent butter fat, instead of 3½ per cent.

While the contents of your letter do not require further answer than is given above, I take this opportunity to state that I am a supporter of the Hepburn bill; that I consider national legislation, as comprehensive as the Hepburn bill, is necessary, both to cover the interstate commerce feature of food distribution (which can not be covered by State legislation) and to establish food standards, in order that uniformity of State standards may follow. I do not believe that uniformity of standards can be established by the States acting alone.

Yours, truly,

H. R. WRIGHT, *Dairy Commissioner.*

STATE OF WISCONSIN,
OFFICE OF DAIRY AND FOOD COMMISSION,
Madison, Wis., February 12, 1906.

HON. H. W. WILEY, *Washington, D. C.*

DEAR SIR: I am in receipt of yours of February 10. In reply will say that at the St. Louis meeting of the National Association of State Dairy and Food Departments the following resolution was passed:

"Resolved, That the National Association of State Dairy and Food Departments, assembled in its eighth annual session September 26 to October 1, 1904, at Congress Hall, on the St. Louis Purchase Exposition grounds at St. Louis, Mo., hereby records its indorsement of the Hepburn [Heyburn] pure-food bill, H. R. 6295, as passed January 19, 1904, by the National House of Representatives, and most urgently requests the passage of the same by the United States Senate."

I understand that resolution to have committed the association named to the support of the bill specified in the resolution. I believe that the members of that association thought that bill might be improved by some amendments, but that association indorsed the salient principles and features of that bill.

If by the Lorimer bill (H. R. 13853) is meant the bill which has been referred to as the American Food Journal bill, then I must say that I am not in favor of the passage of that bill, and I have indicated the same to Mr. Eaton, chemist for the Illinois dairy and food commission, who has twice written me concerning the merits of that bill.

I favor the passage of a bill by Congress that shall authorize the fixing of food standards under authority of the United States Government. While the standards that have already been fixed under authority of the United States Government may in some particulars be improved and require modification as time passes, still I believe that pure-food laws will be more effective in securing the just purposes of such laws by having authority to fix food standards lodged in some administrative department of the United States Government. I fear that the depending upon States to fix food standards, without such authority being vested in the United States Government, will result in weak and ineffective results.

On this subject of national standards, I call your attention to the fact recorded on page 586 of the published proceedings of the National Association of State Dairy and Food Departments, held at St. Paul, Minn., in 1903, that on a motion of Commissioner Jones, of Illinois, "That it be the sense of this association that when established by the United States Secretary of Agriculture these standards be the standards fixed by this association," that motion was seconded and carried.

The Heyburn bill, introduced in the present Congress, seems to me to be the best law that I have so far seen.

Very truly, yours,

J. Q. EMERY,
Commissioner.

STATE OF CONNECTICUT, DAIRY COMMISSIONER'S OFFICE,
Hartford, February 14, 1906.

HON. H. W. WILEY,
Department of Agriculture, Washington, D. C.

MY DEAR SIR: Your letter received regarding the food standards as proclaimed by the Secretary of Agriculture. You ask the following question: "In your opinion are the food standards as proclaimed by the Secretary of Agriculture impractical?"

In answer to this question will say that we do not consider said food standards as impractical. So far as those standards have been proclaimed by the Secretary of Agriculture they have been adopted as the food standards of our State, and in doing this we supposed and thought that we were adopting food standards that were practical.

Yours, very respectfully,

JOHN B. NOBLE.

STATE BOARD OF HEALTH, SECRETARY'S OFFICE,
Brattleboro, Vt., February 13, 1906.

H. W. WILEY, M. D.,

Bureau of Chemistry, Agricultural Department, Washington, D. C.

MY DEAR DOCTOR WILEY: Yours of February 10 asking the opinion of this board with reference to the standard of pure foods established by the Department of Agriculture is at hand. I have to say that our pure-food law has been in operation one year; that we adopted as our standard the standard of the Department, and it has worked entirely satisfactorily. We believe it is upon a correct basis and trust that none other will be adopted in its stead.

Yours, truly,

HENRY D. HOLTON,
Secretary.

STATE OF MINNESOTA, DAIRY AND FOOD DEPARTMENT,
St. Paul, February 13, 1906.

Mr. H. W. WILEY,

Bureau of Chemistry, United States

Department of Agriculture, Washington, D. C.

MY DEAR SIR: Replying to your favor of the 10th instant, I am very favorably impressed with the food standards as presented by your committee, and I feel that this work is in good hands.

I understand that these standards have been arranged by some of the leading chemists in the country, and while they may not be perfect I consider them more nearly so than anything else in the country.

Trusting that this will be of service to you, I remain

Yours, truly,

EDWARD K. SLATER,
Commissioner.

STATE OF OHIO,
OFFICE OF DAIRY AND FOOD COMMISSIONER,
Columbus, February 13, 1906.

Prof. H. W. WILEY,

Chief of Bureau of Chemistry, Washington, D. C.

MY DEAR MR. WILEY: I have your letter of February 10, in which you refer to the article appearing in the Retailers' Journal, which is going the rounds of the press and which has been presented to the Committee on Agriculture of the House of Representatives by Mr. Hough. In reply, I beg leave to say that the bill referred to, which is known as the Lorimer bill, seems to be, as far as I can ascertain, a bill prepared by the chemist of the Illinois food department, viz, Mr. Eaton, who seems to have sent a copy to some of the commissioners, but none ever came to the Ohio commissioner for an opinion.

Who the State food commissioners are who are supporting this bill I do not know. I think that the bulk of the food commissioners favor the Hepburn bill. As to the food standards as claimed by the Secretary of Agriculture, while they may differ and do differ in one or two respects from the standards in this State (I have in mind, however, only the milk standard, which is a fraction higher than ours), they do not seem to me to be at all impracticable. It seems that the prediction that I made at Portland in my talk upon the national food law, viz, that the enemies of the bill would do all they could to distract the friends of the measure by having introduced various bills, has come true, and Mr. Hough will undoubtedly leave nothing undone to try to create the impression that the food commissioners are against the real measure.

Very truly, yours,

HORACE ANKENY, *Commissioner.*

STATE OF INDIANA, STATE BOARD OF HEALTH,
Indianapolis, February 13, 1906.

Dr. H. W. WILEY,
Chief Bureau of Chemistry, Washington, D. C.

DEAR SIR: I am in receipt of your letter of the 10th instant, inclosing statement taken from the Retailer's Journal for February, to the effect that the State food commissioners are giving their support to the Lorimer bill, and asserting that the standards of the Department of Agriculture are impracticable. This statement is incorrect, and conveys a wholly erroneous impression of the value of the present Government standards. The State board of health of Indiana has, within the last six months, adopted in full the standards proclaimed by the Secretary of Agriculture as official for the State. This action shows the opinion of the State board in regard to the practicability of the Government standards.

Very truly, yours,

J. N. HURTY,
Secretary and State Food Commissioner.

NEBRASKA FOOD COMMISSION,
Lincoln, Nebr., February 13, 1906.

Dr. H. W. WILEY,
Washington, D. C.

DEAR SIR: Your favor of the 10th instant at hand in regard to the food standards, and in reply would say that I think them perfectly practical.

The method of formulating these standards is certainly a commendable one and the only feasible way to arrive at definite standards for the controlling of the sale of food products. I hope you will be successful in giving us a national food law this winter.

Very truly, yours,

W. F. THOMPSON.

THE STATE OF NEW HAMPSHIRE, STATE BOARD OF HEALTH,
Concord, N. H., February 12, 1906.

Dr. H. W. WILEY,
Washington, D. C.

MY DEAR DOCTOR: I am in receipt of your favor of February 10, and note the quotation which you take from The Retailers' Journal for February, 1906, page 27, to wit: "The State food commissioners who are giving their support to this bill (referring to the Lorimer bill, H. R. 13853) assert that no other national food law is needed. They declare, in addition, that Doctor Wiley's food standards are impractical, and assert in reply to the demand for uniform food standards that the commissioners of the various States which have pure-food laws already have under way plans to insure such uniformity in the State laws." My comment is that in my opinion this assertion is wholly without foundation.

If the various commissioners of the several States who have the pure-food laws to execute have plans under way to insure uniformity in the State laws, it is entirely unknown to this department. Inasmuch as we have a State laboratory of hygiene and have been doing a large amount of food work for the past four years, equaled by only a few States in the Union, I am of the opinion that if such a movement did exist we should be likely to have some knowledge of it.

We have long been of the opinion that the food standards proclaimed by the Department of Agriculture are as satisfactory as it is possible to establish, have adopted them in our work, and have even incorporated some of them in our State legislation.

I am fearful that the statement quoted is only another of many indirect attempts that are being made by interested parties to defeat a national pure-food law, which is so much to be desired, and without which the several States are powerless to enforce the pure-food laws within their own jurisdictions. It is absolutely impossible for the States to enforce their pure-food laws until some interstate-commerce regulations control the importation of adulterated foods into those States.

Very truly, yours,

IRVING A. WATSON, *Secretary.*

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE OF KENTUCKY,
Lexington, Ky., February 12, 1906.

Dr. H. W. WILEY,
Bureau of Chemistry, Washington, D. C.

DEAR SIR: I have your letter in regard to food standards adopted by the United States Department of Agriculture. I would say that I have charge of the enforcement of the food laws of our State and I have been using and have adopted the food standards adopted by the United States Department of Agriculture. I find them excellent. I believe the food laws of Kentucky are thoroughly executed, but it would be difficult to do so without the standards. I have no complaint from the manufacturers in regard to our enforcement of the law under the standards. They are just and explicit. I have also adopted the food-inspection decisions of the United States Department of Agriculture wherever applying to our conditions.

In order to protect our retailers we need a national food law, but the Lorimer bill would be wholly inadequate.

Yours, very truly,

M. A. SCOVELL, *Director.*

DEPARTMENT OF AGRICULTURE, OFFICE OF THE COMMISSIONER,
Tallahassee, Fla., February 15, 1906.

Hon. H. W. WILEY,
Chief of Bureau of Chemistry, Washington, D. C.

DEAR SIR: In reply to your letter of the 10th instant, relative to food standards as established by the Department of Agriculture and the Bureau of Chemistry, we unhesitatingly say that, in our opinion, the standards fixed are eminently practical in every way. We believe that a national law enforcing such standards will be of great assistance to the several States in the enforcement of the State pure-food laws, and is really a necessity to that end.

We unqualifiedly approve of the standards you have established.

Yours, very truly,

B. E. McLIN,
Commissioner of Agriculture.

[In a letter from Elton Fulmer, of the State of Washington, attending the meeting of the Food and Dairy Association Food Standards committee in Chicago, dated February 20, 1906.]

The committee on food standards of the Interstate Food Commission unanimously adopted the following resolution:

"Whereas the report has gone out that we, the food standards committee of the Interstate Food Commission (formerly the National Association of State, Dairy, and Food Departments), repudiated the standards adopted by the United States Department of Agriculture and are opposed to the passage of the Hepburn-Heyburn bill in Congress, which has already received the sanction of the National Association at their St. Paul and St. Louis meetings: Therefore,

"Be it resolved, That we, the above committee on standards, do hereby publicly deny the above reports."

This resolution was adopted February 20, 1906.

PORTLAND, OREG., February 19, 1906.

Dr. H. W. WILEY,
Department of Agriculture, Washington, D. C.

DEAR SIR: Yours of February 10 is at hand and contents carefully noted. I have, however, failed to receive a copy of pure-food standards as proclaimed by the Department of Agriculture and have not, therefore, had an opportunity to study it as carefully as I would have liked. We have been receiving the bulletins as published from time to time, and I believe that upon the whole they are conservative. In some instances I would say, however, that the standards have been set too high. Condensed milk, for instance, that requires 28 per cent total solids, one-fourth of which shall be butter fat, would be impractical, also evaporated cream that is required to contain 15 per cent butter fat. There may be others; I simply mention these two as they at this time present themselves to my mind.

As to the statement that the pure-food interests are giving their support to the "Lorimer bill," I know nothing about it, as I have never seen the bill. I am now and have been at all times in favor of the Hepburn bill and have so stated to Doctor Eaton and others, and if it is true that the State food commissioners are giving their support to any other bill, I am of the opinion that they are making a mistake. Referring again to the matter of standards, will say that I believe that if a committee of food chemists, those who have had years of experience in food analysis and food-control work, could meet with the official chemists of your Department they could formulate food standards that would be satisfactory. I certainly should deplore a condition that would permit of two sets of standards.

Trusting that this will cover your request, I am,

Sincerely and truly yours,

J. W. BAILEY.

MICHIGAN DAIRY AND FOOD DEPARTMENT,
Lansing, February 24, 1906.

Dr. H. W. WILEY, Washington, D. C.

DEAR SIR: I am in receipt of your letter of February 10 requesting a statement over my signature giving my opinion as to the practicality of the food standards proclaimed by the Secretary of Agriculture. Replying thereto, I am pleased to submit the following opinion, based upon the report of the State analyst made to me this day:

My understanding of the matter under consideration is that under authority of act of Congress, approved March 3, 1903, the Secretary of Agriculture was instructed to establish standards of purity for food products for the United States. In so doing the Secretary of Agriculture was requested to secure the collaboration of prominent members of the association of official agricultural chemists.

Five men were appointed by him as a committee to submit these standards. These men were all of national reputation. In devising these standards they consulted freely with other scientists in different parts of the country, and the standards as officially adopted by the Secretary of Agriculture have been given very wide publicity, and scientists in different parts of the country have been invited to criticize them from time to time. I firmly believe that the food standards proclaimed by the Secretary of Agriculture as a result of this work are entirely practicable. In arriving at this conclusion, I do not fail to take into consideration the fact that the Government standard thus arrived at is different in some respects from the standard in this case. However, when because of local conditions it is the desire of any State to fix a standard higher than that fixed by the Government, I understand it to be the privilege of such State to take such action.

All of which is respectfully submitted.

Very truly, yours,

A. C. BIRD,
State Dairy and Food Commissioner.

NUMBERING OFFICIAL DOCUMENTS.

I want to call attention in connection with the food standards committee to the testimony of Mr. Williams, who says, on page 18:

I read from a bulletin given out by the United States Department of Agriculture, Bureau of Chemistry, and headed "Standards of purity for food products."

The CHAIRMAN. What is the number of the circular?

Mr. WILLIAMS. There is no number on it and no date on it, nothing to tell when it was sent out. We received it from the Department of Agriculture early last Congress.

I desire to call attention, Mr. Chairman, to the fact that no official publication of any kind has ever gone out from the Department of Agriculture without some method of identification. Mr. Williams is evidently quoting from something which is not official, and therefore which could not be standards of purity for food products. Only two circulars relating to standards of food products have ever been officially promulgated by the Department of Agriculture. These are Circulars No. 10 of the Office of the Secretary and No. 13 of the Office of the

Secretary, superseding Circular No. 10. I hardly think a statement of the kind that Mr. Williams made should go without some attention, for it is evidently incorrect. If Mr. Williams could remember so well the language occurring in the circular he ought to have known that it bore both a date and a number. The circular No. 13, which I submit as a part of the record, was issued December 20, 1904, and signed by the Secretary of Agriculture.

UNITED STATES DEPARTMENT OF AGRICULTURE.

[Office of the Secretary.—Circular No. 13.]

STANDARDS OF PURITY FOR FOOD PRODUCTS.

(Superseding Circular No. 10.)

SUPPLEMENTAL PROCLAMATION.

Referring to my proclamation of November 21, 1903, the following food standards are hereby proclaimed as supplemental to standards proclaimed on the date above named.

JAMES WILSON, *Secretary*.

WASHINGTON, D. C., *December 20, 1904.*

UNITED STATES DEPARTMENT OF AGRICULTURE.

BUREAU OF CHEMISTRY,

Washington, D. C., December 19, 1904.

The SECRETARY OF AGRICULTURE.

SIR: The undersigned, representing the Association of Official Agricultural Chemists of the United States, and commissioned by you, under authority given by the act of Congress approved March 3, 1903, to collaborate with you "to establish standards of purity for food products and to determine what are regarded as adulterations therein, for the guidance of the officials of the various States and of the courts of justice," respectfully submit herewith for your consideration standards for certain articles belonging to the schedules of grains and grain products, refiners' sirup, honey, wine, and vinegar, with the recommendation that they be approved and proclaimed the established standards.

In the expression of these standards, a form has been adopted more concise than that used in expressing the standards proclaimed November 21, 1903.

For the sake of uniformity in expression and interpretation, the committee has restated, without change in their matter, the standards proclaimed on the date above named, and recommends that they be published, together with the additional standards herewith submitted and the introductory statement of principles upon which the standards are based, in a circular superseding Circular No. 10, Office of the Secretary, United States Department of Agriculture.

For the primary standards in the schedule of wines the committee is greatly indebted to Chas. A. Crampton, M. D., chemist of the Bureau of Internal Revenue, referee on beverages, and for valuable assistance in reference to that schedule to W. D. Bigelow, Ph. D., chief of the Division of Foods, Bureau of Chemistry.

The several schedules of additional standards recommended have been submitted, in a tentative form, to the manufacturing firms and the trade immediately interested, and also to the State food control officials for criticism. Helpful suggestions and information have been received from many sources which will later be more specifically acknowledged.

Very respectfully,

WILLIAM FREAR.
E. H. JENKINS.
M. A. SCOVELL.
H. A. WEBER.
H. W. WILEY.

ORIGINAL PROCLAMATION OF STANDARDS AND LETTER OF TRANSMITTAL.

[Circular No. 10, Secretary's Office.]

Whereas, The Congress of the United States by an act approved June 3, 1902, authorized the Secretary of Agriculture to establish standards of purity for food products; and

Whereas, He was empowered by this act to consult with the Committee on Food Standards of the Association of Official Agricultural Chemists and other experts in determining the standards; and

Whereas, He has in accordance with the provisions of the act availed himself of the counsel and advice of these experts and of the trade interests touching the products for which standards have been determined and has reached certain conclusions based on the general principles of examination and conduct hereinafter mentioned;

Therefore, I, James Wilson, Secretary of Agriculture, do hereby proclaim and establish the following standards for purity of food products together with their precedent definitions as the official standards of these food products for the United States of America.

JAMES WILSON.

WASHINGTON, D. C., November 21, 1903.

[United States Department of Agriculture, Bureau of Chemistry, Washington, D. C.]

THE SECRETARY OF AGRICULTURE OF THE UNITED STATES.

SIR: The undersigned, representing The Association of Official Agricultural Chemists of the United States, and commissioned by you, under authority given by the Act of Congress approved March 3, 1903, to collaborate with you "to establish standards of purity for food products and to determine what are regarded as adulterations therein, for the guidance of the officials of the various States and of the Courts of Justice," respectfully submit herewith, for your consideration, standards for certain articles belonging to the schedules of meat and the principal meat products, milk and its products, sugars and related substances, and condiments and cocoa and cocoa products, with the recommendation that they be approved and proclaimed the established standards.

In connection therewith are presented a classified list of the various schedules of food products for which standards are being prepared and a statement of some of the more important general principles upon which the standards are based.

Before the adoption of any schedule it was submitted to the manufacturing firms and the trade immediately interested for criticism, and, when requested by them, conferences for discussion have been arranged. Certain questions have arisen in the discussion of these standards relative to several substances sometimes used as preservatives or coloring matters. In the judgment of the committee these questions can most satisfactorily be treated in connection with Schedule III, Preservatives and Coloring Matters, and recommendations have therefore been deferred pending the consideration of that schedule.

For the primary definitions and standards and for the compilation of data for standards and constant assistance in the revision of the schedules, the committee is greatly indebted to the following persons: Charles D. Woods, Ph. D., director of the Maine Agricultural Experiment Station, Orono, Me., referee on meat and its products; L. L. Van Slyke, Ph. D., chemist of the New York Agricultural Experiment Station, Geneva, N. Y., referee on milk and its products; Charles A. Crampton, M. D., chemist of the Bureau of Internal Revenue, referee on beverages, including cocoa and cocoa products; A. L. Winton, Ph. B., chemist of the Connecticut Agricultural Experiment Station, New Haven, Conn., referee on condiments.

The committee is also indebted to others for information and helpful suggestions, which will be more specifically acknowledged in a report of its work to be later submitted.

Very respectfully,

WILLIAM FREAR.
EDWARD H. JENKINS.
MELVILLE A. SCOVELL.
HENRY A. WEBER.
HARVEY W. WILEY.

PRINCIPLES ON WHICH THE STANDARDS ARE BASED.

The general considerations which have guided the committee in preparing the standards for food products are the following:

1. The standards are expressed in the form of definitions, with or without accompanying specifications of limit in composition.

2. The main classes of food articles are defined before the subordinate classes are considered.

3. The definitions are so framed as to exclude from the articles defined substances not included in the definitions.

4. The definitions include, where possible, those qualities which make the articles described wholesome for human food.

5. A term defined in any of the several schedules has the same meaning wherever else it is used in this report.

6. The names of food products herein defined usually agree with existing American trade or manufacturing usage, but where such usage is not clearly established or where trade names confuse two or more articles for which specific designations are desirable, preference is given to one of the several trade names applied.

7. Standards are based upon data representing materials produced under American conditions and manufactured by American processes or representing such varieties of foreign articles as are chiefly imported for American use.

8. The standards fixed are such that a departure of the articles to which they apply, above the maximum or below the minimum limit prescribed, is evidence that such articles are of inferior or abnormal quality.

9. The limits fixed as standard are not necessarily the extremes authentically recorded for the article in question, because such extremes are commonly due to abnormal conditions of production and are usually accompanied by marks of inferiority or abnormality readily perceived by the producer or manufacturer.

FOOD STANDARDS.

I. ANIMAL PRODUCTS.

A. MEATS AND THE PRINCIPAL MEAT PRODUCTS.

a. MEATS.

1. *Meat* is any sound, dressed, and properly prepared edible part of animals in good health at the time of slaughter. The term "animals," as herein used, includes not only mammals, but fish, fowl, crustaceans, mollusks, and all other animals used as food.

2. *Fresh meat* is meat from animals recently slaughtered or preserved only by refrigeration.

3. *Salted, pickled, and smoked meats* are unmixed meats preserved by salt, sugar, vinegar, spices, or smoke, singly or in combination, whether in bulk or in packages.

b. MANUFACTURED MEATS.

1. *Manufactured meats* are meats not included in paragraphs 2 and 3, whether simple or mixed, whole or comminuted, in bulk or packages, with or without the addition of salt, vinegar, spices, smoke, oils, or rendered fat. If they bear names descriptive of composition they correspond thereto, and when bearing such descriptive names, if force or flavoring meats are used, the kind and quantity thereof are made known.

c. MEAT EXTRACTS, MEAT PEPTONES, ETC.

(Schedule in preparation.)

d. LARD.

1. *Lard* is the rendered fresh fat from slaughtered, healthy hogs, is free from rancidity, and contains not more than one (1) per cent of substances, other than fatty acids, not fat, necessarily incorporated therewith in the process of rendering.

2. *Leaf lard* is lard rendered at moderately high temperatures from the internal fat of the abdomen of the hog, excluding that adherent to the intestines, and has an iodine number not greater than sixty (60).

3. *Neutral lard* is lard rendered at low temperatures.

B. MILK AND ITS PRODUCTS.

a. MILKS.

1. *Milk (whole milk)* is the lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and five days after calving, and contains not less than twelve (12) per cent of total solids, not less than eight and one-half (8.5) per cent of solids not fat, and not less than three and one-quarter (3.25) per cent of milk fat.

2. *Blended milk* is milk modified in its composition so as to have a definite and stated percentage of one or more of its constituents.

3. *Skim milk* is milk from which a part or all of the cream has been removed, and contains not less than nine and one-quarter (9.25) per cent of milk solids.

4. *Buttermilk* is the product that remains when butter is removed from milk or cream in the process of churning.

5. *Pasteurized milk* is milk that has been heated below boiling, but sufficiently to kill most of the active organisms present, and immediately cooled to fifty degrees (50°) Fahr. or lower to retard the development of their spores.

6. *Sterilized milk* is milk that has been heated at the temperature of boiling water or higher for a length of time sufficient to kill all organisms present.

7. *Condensed milk* is milk from which a considerable portion of water has been evaporated, and contains not less than twenty-eight (28) per cent of milk solids, of which one-fourth is milk fat.

8. *Sweetened condensed milk* is milk from which a considerable portion of water has been evaporated and to which sugar (sucrose) has been added, and contains not less than twenty-eight (28) per cent of milk solids, of which not less than one-fourth is milk fat.

9. *Condensed skim milk* is skim milk from which a considerable portion of water has been evaporated.

b. MILK FAT OR BUTTER FAT.

1. *Milk fat or butter fat* is the fat of milk, and has a Reichert-Meisssl number not less than twenty-four (24) and a specific gravity not less than 0.90 $\left(\frac{40^{\circ} \text{ C.}}{40^{\circ} \text{ C.}}\right)$

c. CREAM.

1. *Cream* is that portion of milk, rich in butter fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force, and contains not less than eighteen (18) per cent of milk fat.

2. *Evaporated cream* is cream from which a considerable portion of water has been evaporated.

d. BUTTER.

1. *Butter* is the product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass, which also contains a small portion of the other milk constituents, with or without salt, and contains not less than eighty-two and five-tenths (82.5) per cent of butter fat. By acts of Congress approved August 2, 1886, and May 9, 1902, butter may also contain additional coloring matter.

2. *Renovated or process butter* is the product made by melting butter and reworking, without the addition or use of chemicals or any substances except milk, cream, or salt, and contains not more than sixteen (16) per cent of water and at least eighty-two and five-tenths (82.5) per cent of butter fat.

e. CHEESE.

1. *Cheese* is the solid and ripened product made by coagulating the casein of milk by means of rennet or acids, with or without the addition of ripening ferments and seasoning. By act of Congress, approved June 6, 1896, cheese may also contain additional coloring matter.

2. *Whole milk or full cream cheese* is cheese made from milk from which no portion of the fat has been removed, and contains, in the water-free substance, not less than fifty (50) per cent of butter fat.

3. *Skim-milk cheese* is cheese made from milk from which any portion of the fat has been removed.

4. *Cream cheese* is cheese made from milk and cream, or milk containing not less than six (6) per cent of fat.

f. MISCELLANEOUS MILK PRODUCTS.

1. *Ice cream* (schedule in preparation).

2. *Whey* is the product remaining after the removal of fat and casein from milk in the process of cheese making.

3. *Kumiss* is the product made by the alcoholic fermentation of mare's or cow's milk with or without the addition of sugar (sucrose).

II. VEGETABLE PRODUCTS.

A. GRAIN PRODUCTS.

(a) GRAINS AND MEALS.

1. *Grain* is the fully matured, clean, sound, air-dry seed of wheat, maize, rice, oats, rye, buckwheat, barley, sorghum, millet, or spelt.

2. *Meal* is the sound product made by grinding grain.

3. *Flour* is the fine, sound product made by bolting wheat meal, and contains not more than thirteen and one-half (13.5) per cent of moisture, not less than one and twenty-five hundredths (1.25) per cent of nitrogen, not more than one (1.0) per cent of ash, and not more than fifty hundredths (0.50) per cent of fiber.

4. *Graham flour* is unbolted wheat meal.

5. "*Whole wheat flour*," "*entire wheat flour*," improperly so called, is fine wheat meal from which a part of the bran has been removed.

6. *Gluten flour* is the product made from flour by the removal of starch, and contains not less than five and six-tenths (5.6) per cent of nitrogen and not more than ten (10) per cent of moisture.

7. *Maize meal, corn meal, or Indian corn meal* is meal made from sound maize grain, and contains not more than fourteen (14) per cent of moisture, not less than one and twelve-hundredths (1.12) per cent of nitrogen, and not more than one and six-tenths (1.6) per cent of ash.

8. *Rice* is the hulled and polished grain of *Oryza sativa*.

9. *Oatmeal* is meal made from hulled oats, and contains not more than eight (8) per cent of moisture, not more than one and five-tenths (1.5) per cent of crude fiber, not less than two and twenty-four hundredths (2.24) per cent of nitrogen, and not more than two and two-tenths (2.2) per cent of ash.

10. *Rye flour* is the fine sound product made by bolting rye meal, and contains not more than thirteen and one-half (13.5) per cent of moisture, not less than one and thirty-six hundredths (1.36) per cent of nitrogen, and not more than one and twenty-five hundredths (1.25) per cent of ash.

11. *Buckwheat flour* is bolted buckwheat meal, and contains not more than twelve (12) per cent of moisture, not less than one and twenty-eighths hundredths (1.28) per cent of nitrogen, and not more than one and seventy-five hundredths (1.75) per cent of ash.

D. FRUITS AND VEGETABLES.

(Schedule in preparation.)

C. SUGARS AND RELATED SUBSTANCES.

a. SUGAR AND SUGAR PRODUCTS.

SUGARS.

1. *Sugar* is the product chemically known as sucrose (saccharose) chiefly obtained from sugar cane, sugar beets, sorghum, maple, or palm.

2. *Granulated, loaf, cut, milled, and powdered sugars* are different forms of sugar, and contain at least ninety-nine and five-tenths (99.5) per cent of sucrose.

3. *Maple sugar* is the solid product resulting from the evaporation of maple sap.

4. *Massecuite, melada, mush sugar and concrete* are products made by evaporating the purified juice of a sugar-producing plant, or a solution of sugar, to a solid or semi-solid substance, in which the sugar chiefly exists in a crystalline state.

MOLASSES AND REFINERS' SIRUP.

1. *Molasses* is the product left after separating the sugar from massecuite, melada, mush sugar, or concrete, and contains not more than twenty-five (25) per cent of water and not more than five (5) per cent of ash.

2. *Refiners' sirup* ("treacle") is the residual liquid product obtained in the process of refining raw sugars, and contains not more than twenty-five (25) per cent of water and not more than eight (8) per cent of ash.

SIRUPS.

1. *Sirup* is the product made by purifying and evaporating the juice of a sugar-producing plant without removing any of the sugar, and contains not more than thirty (30) per cent of water and not more than two and five-tenths (2.5) per cent of ash.

2. *Sugar-cane sirup* is sirup made by the evaporation of the juice of the sugar cane or by the solution of sugar-cane concrete.

3. *Sorghum sirup* is sirup made by the evaporation of sorghum juice or by the solution of sorghum concrete.

4. *Maple sirup* is sirup made by the evaporation of maple sap or by the solution of maple concrete.

5. *Sugar sirup* is sirup made by dissolving sugar to the consistence of a sirup.

B. GLUCOSE PRODUCTS.

1. *Starch sugar* is the solid product made by hydrolyzing starch or a starch-containing substance until the greater part of the starch is converted into dextrose. Starch sugar appears in commerce in two forms, anhydrous and hydrous. The former, crystallized without water of crystallization, contains not less than ninety-five (95) per cent of dextrose and not more than eight-tenths (0.8) per cent of ash. The latter, crystallized with water of crystallization, is of two varieties—70 sugar, also known as brewers' sugar, contains not less than seventy (70) per cent of dextrose and not more than eight-tenths (0.8) per cent of ash; 80 sugar, climax or acme sugar, contains not less than eighty (80) per cent of dextrose and not more than one and one-half (1.5) per cent of ash.

The ash of all these products consists almost entirely of chlorids and sulphates.

2. *Glucose, mixing glucose, or confectioner's glucose* is a thick, sirupy, colorless product made by incompletely hydrolyzing starch, or a starch-containing substance, and decolorizing and evaporating the product. It varies in density from forty-one (41) to forty-five (45) degrees Baumé at a temperature of one hundred (100) degrees F. (37.7° C.), and conforms in density, within these limits, to the degree Baumé it is claimed to show, and for a density of forty-one (41) degrees Baumé contains not more than twenty-one (21) per cent and for a density of forty-five (45) degrees not more than fourteen (14) per cent of water. It contains on a basis of forty-one (41) degrees Baumé not more than one (1) per cent of ash, consisting chiefly of chlorids and sulphates.

3. *Glucose sirup or corn sirup* is glucose unmixed or mixed with sirup, molasses, or refiners' sirup and contains not more than twenty-five (25) per cent of water and not more than three (3) per cent of ash.

C. CANDY.

1. *Candy* is a product made from a saccharine substance or substances with or without the addition of harmless coloring, flavoring, or filling materials and contains no terra alba, barytes, talc, chrome yellow, or other mineral substances, or poisonous colors or flavors, or other ingredients injurious to health.

D. HONEY.

1. *Honey* is the nectar and saccharine exudations of plants gathered, modified, and stored in the comb by honey bees (*Apis mellifica*). It is levorotatory, contains not more than twenty-five (25) per cent of water, not more than twenty-

five hundredths (0.25) per cent of ash, and not more than eight (8) per cent of sucrose.

2. *Comb honey* is honey contained in the cells of comb.

3. *Extracted honey* is honey which has been separated from the uncrushed comb by centrifugal force or gravity.

4. *Strained honey* is honey removed from the crushed comb by straining or other means.

D. CONDIMENTS (EXCEPT VINEGAR).

a. SPICES.

1. *Spices* are aromatic vegetable substances used for the seasoning of food and from which no portion of any volatile oil or other flavoring principle has been removed and which are sound and true to name.

2. *Allspice* or *pimento* is the dried fruit of *Pimenta pimenta* (L.) Karst. and contains not less than eight (8) per cent of quercitannic acid; ^a not more than six (6) per cent of total ash; not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than twenty-five (25) per cent of crude fiber.

3. *Anise* is the fruit of *Pimpinella anisum* L.

4. *Bay leaf* is the dried leaf of *Laurus nobilis* L.

5. *Capers* are the flower buds of *Capparis spinosa* L.

6. *Caraway* is the fruit of *Carum carvi* L.

CAYENNE AND RED PEPPERS.

7. *Red pepper* is the dried ripe fruit of any species of *Capsicum*.

8. *Cayenne pepper* or *cayenne* is the dried ripe fruit of *Capsicum frutescens* L., *Capsicum baccatum* L., or some other small-fruited species of *Capsicum*, and contains not less than fifteen (15) per cent of nonvolatile ether extract; not more than six and five-tenths (6.5) per cent of total ash; not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid; not more than one and five-tenths (1.5) per cent of starch, and not more than twenty-eight (28) per cent of crude fiber.

9. *Celery seed* is the dried fruit of *Apium graveolens* L.

10. *Cinnamon* is the dried bark of any species of the genus *Cinnamomum* from which the outer layers may or may not have been removed.

11. *True cinnamon* is the dried inner bark of *Cinnamomum zeylanicum* Breyn.

12. *Cassia* is the dried fruit of various species of *Cinnamomum*, other than *Cinnamomum zeylanicum*, from which the outer layers may or may not have been removed.

13. *Cassia buds* are the dried immature fruit of species of *Cinnamomum*.

14. *Ground cinnamon* or *ground cassia* is a powder consisting of cinnamon, cassia, or cassia buds, or a mixture of these spices, and contains not more than eight (8) per cent of total ash and not more than two (2) per cent of sand.

15. *Cloves* are the dried flower buds of *Caryophyllus aromaticus* L. which contain not more than five (5) per cent of clove stems; not less than ten (10) per cent of volatile ether extract; not less than twelve (12) per cent of quercitannic acid; ^a not more than eight (8) per cent of total ash; not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fiber.

16. *Coriander* is the dried fruit of *Coriandrum sativum* L.

17. *Cumin seed* is the fruit of *Cuminum cyminum* L.

18. *Dill seed* is the fruit of *Anethum graveolens* L.

19. *Fennel* is the fruit of *Faniculum faniculum* (L.) Karst.

20. *Ginger* is the washed and dried or decorticated and dried rhizome of *Zingiber zingiber* (L.) Karst., and contains not less than forty-two (42) per cent of starch, not more than eight (8) per cent of crude fiber, not more than eight (8) per cent of total ash, not more than one (1) per cent of lime, and not more than three (3) per cent of ash insoluble in hydrochloric acid.

21. *Limed* or *bleached ginger* is whole ginger coated with carbonate of lime and contains not more than ten (10) per cent of ash, not more than four (4) per cent of carbonate of lime, and conforms in other respects to the standard for ginger.

^a Calculated from the total oxygen absorbed by the aqueous extract.

22. *Horse-radish* is the root of *Roripa armoracia* (L.) Hitchcock either by itself or ground and mixed with vinegar.

23. *Mace* is the dried arillus of *Myristica fragrans* Houttuyn and contains not less than twenty (20) nor more than thirty (30) per cent of nonvolatile ether extract, not more than three (3) per cent of total ash, not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fiber.

24. *Macassar* or *Papua mace* is the dried arillus of *Myristica argentea* Warb.

25. *Bombay mace* is the dried arillus of *Myristica malabarica* Lamarek.

26. *Marjoram* is the leaf, flower, and branch of *Majoranā majorana* (L.) Karst.

27. *Mustard seed* is the seed of *Sinapis alba* L. (white mustard), *Brassica nigra* (L.) Koch (black mustard), or *Brassica juncea* (L.) Cosson (black or brown mustard).

28. *Ground mustard* is a powder made from mustard seed, with or without the removal of the hulls and a portion of the fixed oil, and contains not more than two and five-tenths (2.5) per cent of starch and not more than eight (8) per cent of total ash.

29. *Nutmeg* is the dried seed of *Myristica fragrans* Houttuyn deprived of its testa, with or without a thin coating of lime, and contains not less than twenty-five (25) per cent of nonvolatile ether extract, not more than five (5) per cent of total ash, not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fiber.

30. *Macassar*, *Papua*, *male*, or *long nutmeg* is the dried seed of *Myristica argentea* Warb. deprived of its testa.

31. *Paprica* is the dried ripe fruit of *Capsicum annuum* L., or some other larged-fruited species of *Capsicum*.

32. *Black pepper* is the dried immature berry of *Piper nigrum* L. and contains not less than six (6) per cent of nonvolatile ether extract, not less than twenty-five (25) per cent of starch, not more than seven (7) per cent of total ash, not more than two (2) per cent of ash insoluble in hydrochloric acid, and not more than fifteen (15) per cent of crude fiber. One hundred parts of the nonvolatile ether extract contain not less than three and one-quarter (3.25) parts of nitrogen. *Ground black pepper* is the product made by grinding the entire berry and contains the several parts of the berry in their normal proportions.

33. *Long pepper* is the dried fruit of *Piper longum* L.

34. *White pepper* is the dried mature berry of *Piper nigrum* L. from which the outer coating or the outer and inner coatings have been removed and contains not less than six (6) per cent of nonvolatile ether extract, not less than fifty (50) per cent of starch, not more than four (4) per cent of total ash, not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than five (5) per cent of crude fiber. One hundred parts of the nonvolatile ether extract contain not less than four (4) parts of nitrogen.

35. *Saffron* is the dried stigma of *Crocus sativus* L.

36. *Sage* is the leaf of *Salvia officinalis* L.

37. *Savory* or *summer savory* is the leaf, blossom, and branch of *Satureja hortensis* L.

38. *Thyme* is the leaf and tip of blooming branches of *Thymus vulgaris* L.

b. FLAVORING EXTRACTS.

(Schedule in preparation.)

c. EDIBLE VEGETABLE OILS.

(Schedule in preparation.)

d. SALT.

(Schedule in preparation.)

E. BEVERAGES AND VINEGAR.

a. TEA.

(Schedule in preparation.)

b. COFFEE.

(Schedule in preparation.)

C. COCOA AND COCOA PRODUCTS.

1. *Cocoa beans* are the seeds of the cacao tree, *Theobroma cacao* L.
2. *Cocoa nibs*, or *cracked cocoa*, is the roasted, broken cocoa bean freed from its shell or husk.
3. *Chocolate*, *plain* or *bitter*, or *chocolate liquor*, is the solid or plastic mass obtained by grinding cocoa nibs without the removal of fat or other constituents except the germ, and contains not more than three (3) per cent of ash insoluble in water, three and fifty hundredths (3.50) per cent of crude fiber, and nine (9) per cent of starch, and not less than forty-five (45) per cent of cocoa fat.
4. *Sweet chocolate* and *chocolate coatings* are plain chocolate mixed with sugar (sucrose), with or without the addition of cocoa butter, spices, or other flavoring materials, and contain in the sugar and fat free residue no higher percentage of either ash, fiber, or starch than is found in the sugar and fat free residue of plain chocolate.
5. *Cocoa* or *powdered cocoa* is cocoa nibs, with or without the germ, deprived of a portion of its fat and finely pulverized, and contains percentages of ash, crude fiber, and starch corresponding to those in chocolate after correction for fat removed.
6. *Sweet or sweetened cocoa* is cocoa mixed with sugar (sucrose), and contains not more than sixty (60) per cent of sugar (sucrose), and in the sugar and fat free residue no higher percentage of either ash, crude fiber, or starch than is found in the sugar and fat free residue of plain chocolate.

d. FRUIT JUICES—FRESH, SWEET, AND FERMENTED.

1. FRESH AND 2. SWEET.

(In preparation.)

3. FERMENTED FRUIT JUICES.

1. *Wine* is the product made by the normal alcoholic fermentation of the juice of sound, ripe grapes and the usual cellar treatment,^a and contains not less than seven (7) nor more than sixteen (16) per cent of alcohol, by volume, and in one hundred (100) cubic centimeters, not more than one-tenth (0.1) gram of sodium chlorid nor more than two-tenths (0.2) gram of potassium sulphate, and for red wine not more than fourteen hundredths (0.14) gram, and for white wine not more than twelve hundredths (0.12) gram of volatile acids derived from fermentation and calculated as acetic acid. *Red wine* is wine containing the red coloring matter of the skins of grapes. *White wine* is wine made from white grapes or the expressed fresh juice of other grapes.

2. *Dry wine* is wine in which the fermentation of the sugars is practically complete and which contains, in one hundred (100) cubic centimeters, less than one (1) gram of sugars, and for dry red wine not less than sixteen hundredths (0.16) gram of grape ash and not less than one and six-tenths (1.6) grams of grape solids, and for dry white wine not less than thirteen hundredths (0.13) gram of grape ash and not less than one and four-tenths (1.4) grams of grape solids.

3. *Fortified dry wine* is dry wine to which brandy has been added, but which conforms in all other particulars to the standard of dry wine.

4. *Sweet wine* is wine in which the alcoholic fermentation has been arrested, and which contains, in one hundred (100) cubic centimeters, not less than one (1) gram of sugars, and for sweet red wine not less than sixteen hundredths (0.16) gram of grape ash, and for sweet white wine not less than thirteen hundredths (0.13) gram of grape ash.

5. *Fortified sweet wine* is sweet wine to which wine spirits have been added.

By act of Congress "sweet wine," used for making fortified sweet wine, and "wine spirits," used for such fortification, are defined as follows (sec. 43, act of October 1, 1890, 26 Stat., 567, as amended by section 68, act of August 28, 1894, 28 Stat., 509): That the wine spirits mentioned in section forty-two of this act

^a The subject of sulphurous acid in wine is reserved for consideration in connection with the schedule Preservatives and Coloring Matters.

is the product resulting from the distillation of fermented grape juice and shall be held to include the product commonly known as grape brandy; and the pure sweet wine which may be fortified free of tax, as provided in said section, is fermented grape juice only, and shall contain no other substance of any kind whatever introduced before, at the time of, or after fermentation, and such sweet wine shall contain not less than four per centum of saccharine matter, which saccharine strength may be determined by testing with Balling's saccharometer, or must scale, such sweet wine, after the evaporation of the spirit contained therein, and restoring the sample tested to original volume by addition of water: *Provided*, That the addition of pure boiled or condensed grape must, or pure crystallized cane or beet sugar to the pure grape juice aforesaid, or the fermented product of such grape juice, prior to the fortification provided for by this act for the sole purpose of perfecting sweet wines according to commercial standard, shall not be excluded by the definition of pure, sweet wine aforesaid: *Provided further*, That the cane or beet sugar so used shall not be in excess of ten per cent of the weight of wines to be fortified under this act.

6. *Sparkling wine* is wine in which the after part of the fermentation is completed in the bottle, the sediment being disgorged and its place supplied by wine or sugar liquor, and which contains, in one hundred (100) cubic centimeters, not less than twelve hundredths (0.12) gram of grape ash.

7. *Sugar wine* is the product made by the addition of sugar to the juice of sound ripe grapes and subsequent alcoholic fermentation, with the usual cellar treatment.

8. *Raisin wine* is the product made by the alcoholic fermentation of an infusion of dried or evaporated grapes, or of a mixture of such infusion or raisins with grape juice.

E. VINEGAR.

1. *Vinegar, cider vinegar, or apple vinegar* is the product made by the alcoholic and subsequent acetous fermentations of the juice of apples, is laevo-rotatory, and contains not less than four (4) grams of acetic acid, not less than one and six-tenths (1.6) grams of apple solids, and not less than twenty-five hundredths (0.25) gram of apple ash in one hundred (100) cubic centimeters. The water-soluble ash from one hundred (100) cubic centimeters of the vinegar requires not less than thirty (30) cubic centimeters of decinormal acid to neutralize the alkalinity, and contains not less than ten (10) milligrams of phosphoric acid (P_2O_5).

2. *Wine vinegar or grape vinegar* is the product made by the alcoholic and subsequent acetous fermentations of the juice of grapes, and contains, in one hundred (100) cubic centimeters, not less than four (4) grams of acetic acid, not less than one and four-tenths (1.4) grams of grape solids, and not less than thirteen hundredths (0.13) grams of grape ash.

3. *Malt vinegar* is the product made by the alcoholic and subsequent acetous fermentations, without distillation, of an infusion of barley malt or cereals whose starch has been converted by malt, and is dextro-rotatory, and contains in one hundred (100) cubic centimeters, not less than four (4) grams of acetic acid, not less than two (2) grams of solids, and not less than two-tenths (0.2) gram of ash. The water-soluble ash from one hundred (100) cubic centimeters of the vinegar requires not less than four (4) cubic centimeters of decinormal acid to neutralize its alkalinity, and contains not less than nine (9) milligrams of phosphoric acid (P_2O_5).

4. *Sugar vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of a sugar, sirup, molasses, or refiners' sirup, and contains, in one hundred (100) cubic centimeters, not less than four (4) grams of acetic acid.

5. *Glucose vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of starch sugar, glucose, or glucose sirup, is dextro-rotatory, and contains, in one hundred (100) cubic centimeters, not less than four (4) grams of acetic acid.

6. *Spirit vinegar, distilled vinegar, grain vinegar* is the product made by the acetous fermentation of dilute distilled alcohol, and contains, in one hundred (100) cubic centimeters, not less than four (4) grams of acetic acid.

PURE FOOD.

f. MEAD, ROOT BEER, ETC.

(Schedule in preparation.)

g. MALT LIQUORS.

(Schedule in preparation.)

h. SPIRITUOUS LIQUORS.

(Schedule in preparation.)

i. CARBONATED WATERS, ETC.

(Schedule in preparation.)

III. PRESERVATIVES AND COLORING MATTERS.

(Schedule in preparation.)

PRACTICAL WORK OF STANDARDS COMMITTEE.

The practical value of the work of the standards committee is acknowledged everywhere. We have at last reached a common basis of judgment which can be accepted as a standpoint for all discussion and for all litigation. In my opinion it would be highly inadvisable for this Congress or any other legislative body to enact a standard into a law. Should this be done, the least deviation from this standard would result in the punishment very often of an innocent offender. If standards are presented, as these are, only as a guide for officials charged with the enforcement of food laws or for the information of the courts, they can be confronted with any kind of evidence which the defendant may desire to introduce to show their injustice or imperfection, and this, it seems to me, should be the right of every defendant. This right they would not have if the standards were made a part of the law. Congress has authorized the fixing of standards in other cases—as, for example, in the case of teas imported into the United States—and the legality of this power has been sustained in a recent decision of the Supreme Court. As an illustration of the practicality of these standards and their usefulness in the courts of justice I append the following letters from the counsel for the Treasury Department of the Board of General Appraisers, addressed to the Secretary of Agriculture, and the Secretary's reply thereto, and other letters of similar character:

BOARD OF UNITED STATES GENERAL APPRAISERS.

*New York, February 19, 1906.*The SECRETARY OF AGRICULTURE, *Washington, D. C.*

SIR: I have the honor to request that you will forward me a copy of a recent report of the Bureau of Chemistry, in your Department, announcing the standards of purity for food products. I am now in possession of one of these reports, but I notice that it bears no date to indicate when it was issued.

As I desire to make use of one of these reports in a legal proceeding before the Board of United States General Appraisers involving the classification of a certain olive oil—the question to be decided being what percentage of free fatty acid in an olive oil renders it inedible—I should be greatly indebted to you if you will forward me a copy of the report properly dated and identified with the seal of your office.

Very respectfully,

JOHN A. KEMP,

Counsel for the Treasury Department.

FEBRUARY 21, 1906.

Mr. JOHN A. KEMP.

*Counsel for the Treasury Department,
641 Washington Street, New York City.*

DEAR SIR: This Department has not issued any approved standards for olive oil. I send you herewith a copy of Circular No. 13, of this Office, which embodies the standards for food products thus far adopted and made official, and you will note that the schedules for edible oils are in preparation.

The report you mention as having in your possession is evidently a copy of an advance circular sent out by the chairman of the food standards committee, giving proposed standards. These advance circulars are sent out for the purpose of inviting correspondence and criticism from those interested, and are subject to such revision and changes as are deemed necessary.

The Bureau of Chemistry of this Department has published a bulletin giving the results obtained from the analysis of a large number of edible olive oils, and I am sending you a certified copy of this report, which may possibly be of some service to you in the classification referred to in your letter of February 19.

Respectfully,

JAMES WILSON, *Secretary.*

ST. LOUIS, MO., July 8, 1905.

Hon. H. W. WILEY,

Chief of Bureau of Chemistry.

DEAR SIR: Please be kind enough to send me by return mail latest bulletins of Department of Agriculture bearing upon the subject of standards and use of preservatives and coloring matter in food products, especially milk and cream; and if you have any literature, legal or otherwise, bearing upon this matter, I wish you would inclose it. Some questions of very great interest to the people in this connection have arisen here, and I hope you will not think I am asking too much.

Hoping you can give this early attention, and thanking you for past favors,

I am, very truly, yours,

E. F. STONE.

UNITED STATES DEPARTMENT OF AGRICULTURE.

BUREAU OF CHEMISTRY.

Washington, D. C., July 12, 1905.

Mr. E. F. STONE.

Room 34, Laclede Building, St. Louis, Mo.

DEAR SIR: In harmony with your request dated July 8, I have sent you under separate cover circulars Nos. 15, 18, and 21 of this Bureau, circular 13 of the Secretary's office, and the opinion of the Attorney-General. In a few days, as soon as the formalities attendant upon their mailing are complied with, you will receive copies of the two parts of our bulletin No. 83, which contains the food laws of the various States as far as they have been compiled by us. I trust you will find in this literature some assistance on the subjects which you are investigating.

Respectfully,

W. D. BIGELOW, *Acting Chief.*

ST. LOUIS, MO., October 17, 1905.

Hon. JAMES WILSON,

Secretary of Agriculture.

DEAR SIR: I am very desirous of using, in evidence, the food definition and standards of purity contained in circular No. 18 of the United States Department of Agriculture, especially the standards and definitions of milk and cream, of which circular No. 18 you will find copy inclosed. I will respectfully request that you duly and properly certify to a copy thereof and return to me at the earliest possible moment. Of course you will understand that I desire a certified copy of said circular to be used in evidence.

This is of vast importance to many citizens in our city, and I sincerely hope it will receive your immediate attention. Whatever fees are to be paid please inform me and they will be promptly remitted.

I remain, yours, very respectfully,

E. F. STONE, *Attorney at Law.*

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., October 23, 1905.

Mr. E. F. STONE,
Room 303, Laclede Building, St. Louis, Mo.

DEAR SIR: In accordance with your request of the 17th instant, I am sending you herewith a certified copy of circular No. 18 of the Bureau of Chemistry. The standards given in that circular have been amended and revised and, together with additional standards, published as circular No. 13 of this office. I send you also a certified copy of this circular.

Respectfully,

JAMES WILSON, *Secretary.*

PROVIDENCE, R. I., July 12, 1905.

The SECRETARY OF THE DEPARTMENT OF AGRICULTURE,
Washington, D. C.

DEAR SIR: As assistant attorney-general and prosecuting officer of the State of Rhode Island I am interested in the question of the effects which formaldehyde, when applied to food, and especially to milk, has upon the human system. I am informed that Professor Wiley, of your Department, has made some interesting experiments, whereby he has discovered some of the actions upon the heart and vital organs of the body, resulting from the use of formaldehyde. Can you furnish me with any data or literature in regard to this subject?

The case which I have in charge is this: In March, 1905, two children, twins, 12 weeks old, died within three hours of each other. They were fed exclusively upon milk delivered by the milkman. No other substance was given them for some time prior, either in the form of medicine or food. The milk, when analyzed, showed very strong traces of formaldehyde. The milkman has been arrested and held upon the charge of manslaughter. This case is new of its kind and excites great interest in our State. It is the first case we know of where the use of a substance in the milk has resulted in death and prosecution has followed. I state this in order that you may more clearly understand my position and what I desire to get at. Any assistance which your Department may give me, and any information which it may offer upon this subject, will be greatly appreciated.

Thanking you in advance for your trouble, I remain,

Yours, very truly,

JAMES C. COLLINS,
Assistant Attorney-General.

JULY 15, 1905.

Mr. JAMES C. COLLINS,
Providence County Court House, Providence, R. I.

DEAR SIR: I have your letter of the 12th instant, relating to the alleged poisoning of two children by formaldehyde in milk.

Formaldehyde has formed one of the studies for the hygienic table in the Bureau of Chemistry, but I regret to say that the results obtained from this experiment have not yet been calculated or summarized so that they can be used. We are pushing the calculations as hard as possible, and I hope they will be completed this fall.

Please let me know at how late a date you can use the information you desire.

Of course you understand the subjects of the experiments conducted by the Bureau of Chemistry were young men, and thus were not nearly as susceptible to a given amount of preservative as in the case of children 12 weeks of age. It is commonly believed that the injurious effects of formaldehyde in milk fed to children are due rather to the influence of the preservative on digestion than to its effects on the heart and vital organs of the body. It is believed that a compound formed by the action of formaldehyde upon the casein of the milk renders the latter much more difficult of digestion than in its natural state.

Cases have been reported of the illness of young children due to the effect of formaldehyde in milk, but, as far as our information goes, this has been attributed to the effects of the preservative on digestion.

Respectfully,

_____, *Secretary.*

PROVIDENCE, R. I., July 20, 1905.

THE SECRETARY OF THE DEPARTMENT OF AGRICULTURE,
Washington, D. C.

DEAR SIR: I beg to acknowledge receipt of your favor of the 15th instant. I am unable to state at how late a time Mr. Collins will be able to use the information which he desires, but when he returns, which will be about August 3, he will probably communicate with you further.

Yours, respectfully,

JESSIE L. ARNOLD, *Stenographer*.

PROVIDENCE, R. I., August 3, 1905.

HON. W. M. HAYS,

Acting Secretary Department of Agriculture, Washington, D. C.

DEAR SIR: I am in receipt of your kind favor of the 15th ultimo, the same having been received while I was on my vacation. I wish to thank you for the interest taken in the matter to which I referred in my letter of the 12th ultimo.

The case will come before the grand jury of Providence County about the 1st of October, but the trial will not occur for several weeks later. If, however, the case should be taken to the higher court on law points, the trial will not occur for two or three months later. You would therefore greatly oblige our department and the attorney-general and myself personally should you be able to furnish us with any further information in regard to the experiments now being carried on and tabulated in regard to the use of formaldehyde. The case is one which is attracting much interest in our community, and appears to be one novel in the practice of criminal law.

Very truly, yours,

JAMES C. COLLINS, Jr.,
Assistant Attorney-General.

PROVIDENCE, R. I., October 9, 1905.

THE SECRETARY OF THE DEPARTMENT OF AGRICULTURE,
Washington, D. C.

DEAR SIR: Some time ago we wrote you in regard to whether you could furnish us with any information upon the use of formaldehyde, as a case of manslaughter from the use of formaldehyde in the adulteration of milk is now pending in this court. We were informed by your Department that experiments were being made, and that at a later date you would be able to furnish some information in this respect. Have those experiments been completed, and are you able to furnish any information?

Yours, very truly,

JAMES C. COLLINS, Jr.

STATE FOOD STANDARDS.

In the following States the authority charged with the enforcement of the food laws is authorized by statute to establish standards:

Connecticut.—"The said experiment station may fix standards of purity, quality, or strength when such standards are not specified by law." (General Statutes 1902, ch. 153, sec. 2575, pp. 664-666.)

Indiana.—"Within ninety days after the passage of this act the State board of health shall adopt such measures as may be necessary to facilitate the enforcement thereof, and shall prepare rules and ordinances where and when necessary regulating minimum standards for foods and drugs, defining specific adulteration and declaring the proper methods of collecting and examining drugs and articles of food." (Horner's Annotated Statutes 1901, vol. 2, sec. 50001.)

Kentucky.—"The director of said station is hereby empowered to adopt and fix standards of purity, quality, or strength, when such standards are not specified or fixed by statute." (Statutes 1903, ch. 53A, sec. 1905A (4), pp. 769-772.)

Maine.—"Said director may also adopt or fix standards of purity, quality, or strength, when such standards are not specified or fixed by law, and shall publish

them, together with such other information concerning articles of food as may be of public benefit." (Public Laws 1905, ch. 68, sec. 5, pp. 68-70.)

North Dakota.—"The said station may adopt or fix standards of purity, quality, or strength, when such standards are not specified or fixed by statute." (Laws of 1903, ch. 6, sec. 5, p. 9.)

Nebraska.—"The said food commissioner * * * shall have power to establish a minimum standard of butter fat in milk and cream." (Compiled Statutes 1903, ch. 33, sec. 3669 (4), pp. 900-904.)

Texas.—"The State health officer shall also, from time to time, fix the limits of variability permissible in any article of food or drug or compound, the standard of which is not established by any national pharmacopœia." (Wilson's Criminal Statutes 1896; Penal Code, title 12, ch. 2, sec. 433, pp. 165-168.)

The executive officer in Connecticut adopted the standards of the United States Department of Agriculture as soon as they were established, and Maine adopted the same standards immediately on the passage of the law of that State. Indiana also adopted the standards of the United States Department of Agriculture as soon as inspection in that State was begun. In North Dakota many of the standards are fixed by statute. Changes that have recently been made by the commissioner have been in the direction of bringing those regulations more into harmony with those of the Department of Agriculture. Of the above States the executive officers in Kentucky and Nebraska established standards in 1900 and 1901, respectively, before the adoption of standards by the Secretary of Agriculture, and have not materially altered them since.

In the following States the laws themselves recognize the standards of the Department of Agriculture, or provide that standards may be adopted by the executive officer of the State which must be in harmony with the standards of the Department.

Idaho.—"The State board of dairy, food, and oil commissioners shall have the authority from time to time to establish standards of strength and purity not designated in this act, said standards to be in harmony with the standards authorized by the United States Department of Agriculture or by the United States Pharmacopœia, as the case may be." (Laws of 1905, house bill No. 66, sec. 29, pp. 54-67.)

Missouri.—"In all prosecutions and proceedings for the enforcement in any of the courts in this State of all laws and regulations of whatsoever nature now in force, or that may hereafter be enacted pertaining to the production, sale, and distribution of dairy products of any kind whatsoever, the standards of purity and the definition of said products shall be such as are now, or may hereafter be, adopted, recognized, and published by the officials of the United States Department of Agriculture, * * *." (Laws of 1905 (H. B. 300), sec. 5, pp. 133-135.) Food inspection in this State does not extend to other foods than dairy products.

North Carolina.—"The board of agriculture shall also, from time to time, fix and publish the limits of variability permissible in any article of food, beverage, or condiment, and these standards, when so published, shall remain the standards before all courts: *Provided*, That when standards have been or may be fixed by the Secretary of Agriculture of the United States they shall be accepted by the board of agriculture and published as the standards of North Carolina." (Public Laws, 1899, ch. 86, sec. 8, p. 216.)

Vermont.—"The standard of purity for food products shall be that adopted by the United States Department of Agriculture." (Laws of 1904, No. 143, sec. 21, pp. 198-202.)

Virginia.—"The board of agriculture shall also, from time to time, fix and publish the limits of variability permissible in any article of food, beverage, or condiment, and these standards, when so published, shall remain the standards before all courts: *Provided*, That when standards have or may be fixed by the Secretary of Agriculture of the United States they shall be accepted by the board of agriculture and published as the standards of Virginia." (Code of 1904, vol. 1, title 25, ch. 84, sec. 1898a (8), pp. 983-986.)

In the following States the executive officer is not authorized to establish standards, but has issued rules and regulations, including standards permissible, to inform those interested of his interpretation of the law. With the exception of South Dakota, these standards have not been materially altered since their original adoption. It will be noted that in all the following States, except Utah, the rulings of the executive officer were adopted before the standards of the committee of the Department of Agriculture were established:

Illinois.—Adopted prior to 1903.

Kansas.—The standards adopted are those of the United States Department of Agriculture.

Michigan.—Adopted prior to 1903.

Pennsylvania.—These regulations were adopted prior to 1903. Regulation No. 3 provides that "Where no standard of strength, quality, or purity is fixed by law, the standard required shall be that adopted by the highest recognized authorities, such as the United States Pharmacopœia or the Association of Official Agricultural Chemists."

South Dakota.—These regulations were adopted prior to 1903, but have been changed to some extent since then. The standards for cream and cheese have been made like those of the Department of Agriculture. None of the changes made are in the opposite direction.

Utah.—The law of Utah was approved March 9, 1905. The commissioner has adopted a portion of the regulations of the Pennsylvania commissioner, including No. 3, which is quoted above.

Washington.—Adopted prior to 1903. "These rulings must not be considered as law, but as an interpretation of the law by the commissioner."

Wisconsin.—Adopted prior to 1903.

Food laws are enforced in the following States, but no standards have been adopted other than those established in the laws.

District of Columbia.

Minnesota.

Massachusetts.

New Hampshire.—Authorized to make regulations (standards not specified).

New Jersey.—Authorized to make regulations (standards not specified).

New York.—State board of health authorized to make regulations; the food work of the State, however, is conducted by the State department of agriculture.

Ohio.

Oregon.

ATTITUDE OF VARIOUS STATES REGARDING PRESERVATIVES.

No action: Alabama, Arizona, Arkansas, Georgia, Iowa, Louisiana, Mississippi, Nebraska, Nevada, New Mexico, Oklahoma, Rhode Island, Tennessee, Texas, West Virginia, Colorado, Delaware, Florida, Kansas.

California.—Forbids the sale of milk and products manufactured therefrom to which any compounds containing salicylic acid, formaldehyde, coloring matter, or any other chemical or preparation other than common salt or sodium chloride, shall have been added with intent to prevent fermentation or to change the color. (Approved March 20, 1905.)

The wine law forbids the addition to wine of aniline dyes, salicylic acid, glycerin, alum, or other chemical antiseptics or ingredients recognized as deleterious to the health of consumers, or as injurious to the reputation of wine as pure. (Act of March 7, 1887.)

Connecticut.—Has declared a food to be adulterated if it contains any antiseptic or preservative not evident or not known to the purchaser or consumer. (General Statutes 1903, ch. 153.)

District of Columbia.—The laws of the District of Columbia declare a product to be adulterated if not free from salicylic acid or other preservatives. Law of February 17, 1898.)

Hawaii.—The law of Hawaii forbids the sale of milk if it contains any preservative or antiseptic. (Approved April 28, 1903.)

The regulations established by the commissioner forbid the sale of any food containing salicylic acid.

Idaho.—Milk to which has been added any "borax, boracic acid, salicylic acid, or any other substance which prevents or tends to prevent the normal bacterial action of milk or cream" is declared impure and unwholesome. Law of March 6, 1905.

Illinois.—The food commissioner has ruled that catsup must not contain preservatives deleterious to health, and that potassium acid sulphite must not be used in any article of food.

Indiana.—The sale of foods and of substances intended to be used as an ingredient of any food containing "formaldehyde or antiseptic injurious to health" is forbidden. (Law of 1905, ch. 169.)

The addition of chemicals to wine is forbidden. (Law of 1905, ch. 169.)

The board of health has ruled that the addition of any antiseptic whatever to milk shall be an adulteration; that fruit jellies, fruit butters, preserves, canned

fruits, fruit conserves, confection, fruit juices and sirups shall be free from preservatives.

That "salicylic acid, benzoic acid, boric acid, hydrofluoric acid, sulphurous acid, and compounds of these acids; formaldehyde or formalin, and various mixtures known to the trade as 'Freezine,' 'Iceine,' 'Formal,' 'preservatives' of various kinds, etc., are antiseptics, and foods or food products containing them are adulterated."

Kentucky.—According to the law of this State, a food is adulterated if it contain any antiseptic or preservative not evident or not known to the purchaser or consumer. (Law of March 17, 1900.)

The officer charged with the enforcement of the law has ruled that "salicylic acid, benzoic acid, boracic acid, hydrofluoric acid, sulphurous acid and their compounds, the salicylates, benzoates, borates, fluorides, and sulphites; also formaldehyde or formalin and various mixtures known in the trade as 'freezine,' 'iceine,' 'preservalines' of various kinds, etc., are antiseptics, and it is unlawful to sell articles of food containing them unless plainly labeled 'adulterated' or the presence of the antiseptic and its kind is clearly shown on the label or made known to all purchasers, where the article is not capable of being labeled." Also that the addition of antiseptics or preservatives to milk and mince-meat is an adulteration unless properly labeled.

Maine.—A food is adulterated if it contains any antiseptic or preservative not evident or not known to the purchaser. (Law of March 15, 1905.)

Milk is adulterated if any foreign substance has been added. (Law of March 7, 1905.)

Maryland.—Milk is adulterated when there has been added "salt, boracic acid, salicylic acid, salicylate of soda, formaldehyde, or any other acid, drug, compound, or substance, or to which ice or water has been added for any purpose whatever. (Laws of 1900, ch. 450.)

Massachusetts.—Food is adulterated if it contains any added antiseptic or preservative substance, except common table salt, saltpeter, cane sugar, alcohol, vinegar, spices, or, in smoked food, the natural products of the smoking process, unless labeled with presence and amount of such antiseptic or preservative excepting surface applications for preserving dried fish or meat. (Laws of 1882, ch. 263, as amended, Laws of 1901, ch. 341.)

Michigan.—Food products containing preservatives must be so labeled. (Compiled Laws of 1897, Vol. II, p. 1706.)

The sale of milk containing chemicals or preservatives is forbidden. (Law of June, 1899.)

Minnesota.—Forbids the addition of "any preservative which conceals or tends to conceal the taste, odor, or other evidence of putrefaction, etc." Forbids the sale of milk or cream to which preservatives of any kind have been added. Forbids addition to milk, butter, or cheese of any borax, boric acid, salicylic acid, formaldehyde, formalin, or other antiferment or preservative, excepting pure salt to butter or cheese.

Missouri.—Forbids the sale of milk or cream containing any foreign substance or preservative of any kind whatsoever injurious to health.

Montana.—Forbids the sale of milk or cream to which boracic acid, salt, salicylic acid, salicylate of sodium, formaldehyde, formalin, or cornstarch are added.

Nebraska.—Forbids the sale of cider containing salicylic acid, formalin, preservit, antiferment, or any other drug, chemical, or substance that does not belong to the apple in its natural state.

New Hampshire.—Forbids the sale of milk containing any coloring matter or preservative.

New Jersey.—Forbids the sale of milk or cream to which has been added any drug, chemical, preservative, or other substance.

New York.—Forbids the addition to wine of salicylic acid or any other preservative. Forbids the sale of milk containing antiseptics or added preservatives.

North Carolina.—An article is declared to be adulterated if it contain formaldehyde, beta-naphthol, abradol, benzoic acid or benzoates, salicylic acid or salicylates, boric acid or borates, sulphurous acid or sulphites, hydrofluoric acid or any fluorine compounds, sulphuric acid, or potassium sulphate, or wood alcohol: *Provided*, That catsups and condimental sauces may contain not to exceed two-tenths of 1 per cent of benzoic acid or its equivalent in sodium benzoate, when labeled as prescribed. Meat, oysters, and fish are declared to

be adulterated if anointed, washed, sprinkled, or fumigated, or in any manner treated with any of the substances declared deleterious and dangerous, whose use and apparent purpose is to retard, prevent, or mask decomposition, or to give to the meat, oysters, or fish a false appearance of freshness or quality. According to the rulings of the State department of agriculture, preservatives must not be added to milk unless the cans are conspicuously labeled to show such addition, and written notice is served on each customer stating the kind and amount of preservative employed.

Fruits, jellies, butter, jams, preserves, conserves, confections, and like articles must be preserved only with cane sugar.

The addition of any preservative must be declared on the label.

North Dakota.—Food is declared to be adulterated if it contains formaldehyde, benzoic acid, sulphurous acid, boric acid, salicylic acid, hydrofluoric acid, saccharin, beta-naphthol, or any salt or antiseptic compound derived from these products. In the summary of the law by the commissioner it is stated that meats must not be colored or contain preservatives.

Ohio.—Wine, fruit juices, and their substitutes must not contain salicylic acid or any other antiseptic.

Oregon.—Prohibits the sale of cider containing salicylic acid, formalin preservative, antiferment, or any other drug, chemical, or substance injurious to health. Prohibits the adulteration of wine containing salicylic acid or any other antiseptic. Prohibits the sale of mixtures or compounds intended for use as an adulterant of or preservative of milk, butter, or cheese, and the addition to milk, butter, or cheese of borax, boric acid, salicylic acid, formaldehyde, formalin, or any other substance or substances in the nature of adulterants, antiferments, or preservatives.

Pennsylvania.—Forbids the sale of milk containing boracic-acid salt, boracic acid, salicylic acid, salicylate of soda, formalin, formaldehyde, sodium fluoride, sodium benzoate, or any other compound or substance for the purpose of preserving the same.

Forbids the sale of fruit sirups containing formaldehyde, sulphurous acid or sulphites, boric acid or borates, salicylic acid or salicylates, saccharine, dulcin, glucin, beta-naphthol, abradol, fluorides, fluoborates, fluosilicates, or other fluorine compounds.

Forbids the sale of meat containing any substance, article, or ingredient possessing a preservative character or action.

Forbids the sale of foods containing formalin, formaldehyde, sodium fluoride, or any of their compounds.

In the definitions and standards of the commissioner, the sale of meats and meat extracts containing preservatives is forbidden.

Fruit preserves and fruit juices must be prepared from the designated fruit, and may contain sugar and glucose, but no other substance.

Porto Rico.—Forbids the sale of food containing boric, benzoic, or salicylic acid, or the salt of either one of these, formaldehyde, or any antiseptic substance whatsoever (except common salt and potassium nitrate) unless each package be labeled as prescribed.

South Dakota.—Forbids the sale of food containing formaldehyde, borax, boracic acid, benzoic acid, sulphites or sulphurous acid, salicylic acid, abradol, beta-naphthol, fluorine compounds, saccharine, or coal-tar dyes. Forbids the sale of butter and cream containing any preservative.

Utah.—Forbids the addition of preservatives to milk. Forbids the addition to milk, cream, or fresh dairy products of boracic acid, formaldehyde, salicylic acid, viscogen, or compounds containing them, or any antiseptics.

Under the rulings of the commissioner, articles of food that can be prepared by improved processes shall have no preservative added other than salt, sirup, sugar, spice, vinegar, or wood smoke.

Vermont.—Forbids the sale of milk or cream treated with chemicals.

Under the rulings of the board, the use of salicylic acid, benzoic acid, boric acid, hydrofluoric acid, sulphurous acid, and compounds of these acids—formaldehyde or formalin—and various mixtures, known to the trade as "Freezine," "Iceine," "Formol," "Preservatines," of various kinds, in foods is forbidden.

Forbids the use of antiseptics in cider. Forbids the use of preservatives in catsup. Forbids the use of preservatives in fruit jellies, jams, preserves, etc. Forbids the use of preservatives in sausage.

Washington.—Forbids the use, in milk or food products, of formaldehyde or other poisonous substance, for the purpose of preservation of otherwise. For-

bids the use of borax, boracic acid, salicylic acid, or any other poisonous substance in milk or cream.

The commissioner has ruled that nonalcoholic beverages shall not contain saccharin, salicylic, benzoic, or boric acid. He has also ruled that saccharin and salicylic acid can not be used in food products.

Wisconsin.—Forbids the use in canned articles of saccharin, formaldehyde, sulphurous acid or sulphites, salicylic acid or salicylates, or any substance, article, or ingredient, other than sugar, salt, vinegar, or spices, possessing a preservative character or action.

Forbids the use in milk of chemicals or preservative substances.

Forbids the use in dairy produces of boracic acid, salicylic acid, or compounds containing them, or other antiseptics injurious to health.

Forbids the use in sausage or chopped meat of chemical preservatives or antiseptics, except common salt, salt peter, spices, or wood smoke.

Forbids the use in foods of formaldehyde, sulphurous acid or sulphites, boric acid or borates, salicylic acid or salicylates, saccharin, dulcin, glucin, beta naphthol, abradol, asaprol, fluorides, fluoborates, fluosilicates, or other fluorine compounds, or any other preservatives injurious to health.

SPECIFIC ACTION REGARDING BENZOIC ACID.

The sale of foods containing benzoic acid is forbidden in Indiana, North Carolina (except in catsup and condimental sauces), North Dakota, South Dakota, and Vermont.

It is forbidden unless foods are labeled as prescribed in Kentucky and Porto Rico.

It is forbidden in nonalcoholic beverages in Washington.

GENERAL PROHIBITION OF PRESERVATIVES.

In addition to the States mentioned above, several States have taken action regarding preservatives in general. Although benzoic acid is not specifically mentioned, it would necessarily be included in this action.

Forbidden in foods: District of Columbia.

Forbidden in foods unless so labeled: Connecticut, Maine, Massachusetts, Michigan.

Forbidden in fruit jellies, jams, preserves, fruit juice, etc.: North Carolina.

A number of other States have forbidden the use of preservatives in dairy products.

DEFINITIONS OF WHISKY GIVEN AT THE TRIAL IN THE BOROUGH OF ISLINGTON, LONDON, CONCLUDED MONDAY, FEBRUARY 26, 1906.

[Dr. Frank Litherland Teed, first day of trial, November 6, 1905.]

Pages 26-31: "Whisky should consist of spirit distilled in a pot still derived from malted barley mixed or not with unmalted barley and wheat or either of them."

This definition was quoted by the magistrate as Mr. Teed's definition. Mr. Teed said it was his definition, and that for the sake of brevity he, Mr. Teed, left out the question of the admissibility of oats and rye, which are present in small quantities, at the outside 10 per cent, but these did not affect the character of the spirit. There are five classes of by-products or secondary products in whisky—acids, aldehydes, furfural, ethers, and higher alcohols. The minimum coefficient of secondary products which genuine pot still Scotch or Irish whisky ought to have is 380 parts per 100,000 fluid parts of absolute alcohol. If the spirit on analysis gives a smaller amount of secondary products it is distilled in a patent still.

Page 38: The word "whisky" does not include that which is done in patent stills.

[Mr. William Martin Murphy, second day of trial, November 13, 1905.]

Pages 41-42, 49, 51: Irish whisky is whisky made mainly from barley, home grown, and with some smaller proportion of wheat or, perhaps, oats, and made by a pot still. If made from Indian corn, even in Ireland, in a pot still, it would not be Irish whisky.

Spirit produced in a patent still would not be considered Irish whisky either in Dublin or in London.

If Mr. Murphy's wine merchant sent Mr. Murphy spirit manufactured in a patent still and purporting to be Irish whisky, Mr. Murphy would never send the wine merchant another order.

The words "Irish whisky" are confined to a whisky mainly made out of grain grown in Ireland.

"Irish blended whisky" means the blending of two whiskies made in Ireland—grain whiskies made in a pot still.

[Dr. Frank Litherland Teed, third day of trial, November 20, 1905.]

Pages 21-22: Part of a patent still is called the rectifier. If spirit has passed through this part, thereby becoming in a certain sense rectified spirit, this rectified spirit can not be whisky.

Page 23: Doctor Teed quotes from Hutchison's Food and Principles of Dietetics the definition of whisky: "Malt whisky is prepared from malt and barley, which is first carefully dried." Then it goes on to describe that when fermentation is complete the fermented mash or wash is distilled in the old-fashioned pot still. Hutchison quotes the definition of the chairman of the inland revenue as whisky being a spirit made from malt, or malt and grain, and distilled in pot stills.

[Mr. William Henry Persse, third day of trial, November 20, 1905.]

Pages 27-28: Mr. Persse makes Persse's whisky. His materials are malt, wheat, oats, and rye. He uses a pot still. If he used a patent still, Mr. Persse would not consider his product whisky, and would not sell it as whisky.

Page 32: Irish whisky is spirit distilled in a pot still from malt, about 75 per cent, and raw grain, about 25 per cent. Patent-still spirit is not Irish whisky.

[Mr. James Talbot Power, third day of trial, November 20, 1905.]

Pages 51-52: In the estimation of the public Irish whisky is the product of the pot still made from home-grown cereals, made in Ireland with Irish water. Patent-still spirit is not Irish whisky.

[Mr. John Mooney, fourth day of trial, December 4, 1905.]

Pages 2-5: Patent still whisky is not whisky. Irish whisky is pot-still whisky. A blend is two pot-still whiskies of different ages and of the same maker or two pot-still whiskies of different makes mixed together. Grain spirit, mixed or not with malt whisky, is not Scotch whisky.

[Mr. William Rose Black, fourth day of trial, December 4, 1905.]

Pages 13-14: Scotch whisky is the product of malted barley and distilled in a pot still. A mixture of patent still spirit and Scotch malt whisky is not Scotch whisky. Spirit distilled from maize, whether in a pot still or a patent still, is not Scotch whisky.

Page 20: Scotch malted barley made with Scotch water in a patent still in Scotland is not whisky.

[Capt. James Brown, fourth day of trial, December 4, 1905.]

Pages 25-26: Scotch whisky is whisky made from malted barley in a pot still, and it must be made in Scotland. The Scotch public understands the above to be the definition of Scotch whisky.

A mixture of patent still spirit and malt whisky made in Scotland is not Scotch whisky.

Patent still spirit is not whisky, whether made in Scotland or elsewhere.

[Mr. Alfred Gilbey, fourth day of trial, December 4, 1905.]

Page 38: Scotch whisky is a spirit distilling (?) from malted barley in a pot still. Irish whisky is distilled principally from malt with the addition of a certain amount of unmalted grain.

Any spirit bearing the name of "whisky" should be distilled only in a pot still.

Page 44: Patent still spirit is not whisky.

[Dr. William Murrell, fifth day of trial, December 13, 1905.]

Pages 3-4: Whisky prescribed by him in his profession should be whisky made from malted barley, with the addition possibly of unmalted barley and, in the case of Irish whisky, of grains indigenous to the country. This whisky must be made in a pot still.

[Mr. Alexander Mackintosh, fifth day of trial, December 13, 1905.]

Page 26: Scotch whisky is a good, sound, malt whisky. It can not be made in a patent still.

[Mr. John McCullom, fifth day of trial, December 13, 1905.]

Page 33: Scotch whisky is malted barley run through a pot still. Genuine Scotch whisky can not be made in a patent still.

[Mr. Henry Booth, fifth day of trial, December 13, 1905.]

Pages 38-39: Irish whisky is distilled in Ireland in pot stills from malt, oats, rye.

Scotch whisky is pot-still whisky from malt.

[Mr. William Thomas Pheysey, fifth day of trial, December 13, 1905.]

Page 43: Scotch whisky is the produce of malted barley in a pot still. Irish whisky is the produce of mixed grains, malt and others, not rice, in a pot still. Malt is the chief ingredient.

[Mr. Bramall, fifth day of trial, December 13, 1905.]

Pages 50-51: By Scotch whisky the public understands whisky made in Scotland from malt without the addition of any grain whatever, and the public knows nothing about the kind of still.

Irish whisky defined the same way, only made in Ireland.

[Mr. Robert Wallace, seventh day of trial, January 8, 1906.]

Page 43: Whisky is a spirit which matures on aging, obtained by distillation from fermented cereals and sugar, more malt being used than is necessary to convert the starch into sugar.

Scotch whisky is whisky made in Scotland.

[Dr. Robert Rattray Tatlock, ninth day of trial, January 22, 1906.]

Pages 22-25: Scotch whisky must be made in Scotland, from cereal grains grown for human food, and the starch in it must be saccharized by malt and malt alone.

Mr. Tatlock has no definition of whisky.

If whisky is made of 90 per cent of malze, it is not Scotch whisky, even if made in Scotland.

Whisky made half of rye, half of malze, is not Scotch whisky.

Page 31: There is no legal definition of whisky.

[Sir James Dewar, ninth day of trial, January 22, 1906.]

Page 41: Whisky is a generic name given to the varieties of ardent spirit as prepared in Ireland and Scotland from the distillation of a fermented infusion of grain, technically called a "wash." The particular piece of apparatus by which the product of the wash is obtained does not affect its being whisky.

Pages 63-64: Whisky would not include a spirit made entirely from Indian corn. It would exclude spirit made from potatoes or rice.

WASHINGTON, D. C., *March 5, 1906.*

DEAR SIR: In his statement to the committee on the pure-food bills, Doctor Wiley is reported to have said as follows:

Why, nobody will ever let you in a blending establishment. I could never get into a blending establishment in this country—not for love nor money (p. 332, printed hearing),

and, representing the blenders of Pennsylvania, I desire to say that this statement is absolutely untrue.

In proof of this, I call your attention to the following statement and extracts from various letters, full copies of which are hereto attached:

In November, 1904, I met Doctor Wiley by appointment, and during the course of the conversation he stated that certain well-known houses were advertising whiskies which were frauds and which did not comport with the representations advertised. His reference to the matter made me believe that the advertisement he had in mind was that of the Wilson Distilling Company, which company was at that time publishing a printed analysis of their whisky. I therefore called this matter to the attention of the vice-president of the Wilson Distilling Company, under date of November 9, 1904 (see Exhibit No. 1), who wrote to me, under date of November 10, 1904, among other things, as follows:

In conclusion, in justice to us and to the rest of the trade, we think the gentleman referred to should be put in immediate possession of these facts, as, from the information contained in your letter, he is evidently laboring under a misapprehension as to how the wholesale liquor dealers in this country conduct their business.

Furthermore, we will pleased to meet him or anyone else, at any time, to substantiate our assertions, or if he would prefer it would be only too pleased to have him come to our plant here in Baltimore, when we will open any and every barrel, door, and room for him that he may wish to see. (See Exhibit No. 2.)

On November 15, 1904, I wrote to Doctor Wiley, inclosing him an entire copy of "Exhibit No. 2," the letter of the vice-president of the Wilson Distilling Company, in which letter I said, among other things, as follows:

In speaking to our larger dealers of your visit to this city and my pleasant conference with you, I was further urged by them to extend to you a cordial invitation to visit their blending rooms and manufacturing plants at any time you are in the city. Of course I should be delighted to show you through the manufacturing plants. I am sure that you could avail yourself of much practical information to the benefit of both the Government, the public, and the dealer. (See Exhibit No. 3.)

Under date of November 16 I received a reply from Doctor Wiley, in which, among other things, he said:

I have yours of the 15th instant, the contents of which I have carefully noted.

and

I thank you for the copy of the letter from the Wilson Distilling Company. (See Exhibit No. 4.)

I call your attention and the attention of the committee to these facts in compliance with your very kind permission extended this morning so to do, and I wish to repeat the invitation which I at that time extended to you or to any members of the committee to visit at any time any of the blending establishments within our State, or if more convenient for you, urge you to accept the invitation extended to you this morning by the Wilson Distilling Company to visit their plant in Baltimore.

Respectfully,

EDW. T. FLEMING.

Subscribed and sworn to before me, a notary public in and for the District of Columbia, this 5th day of March, 1906.

[SEAL.]

WM. H. BADEN,
Notary Public, District of Columbia.

The Wilson Distilling Company, of Baltimore, Md., subscribes fully to the foregoing statement and renews its invitation to the members of the committee to visit their plant in Baltimore, with or without notice.

THE WILSON DISTILLING COMPANY.
By HERMAN ELLIS, *President.*

HON. W. P. HEPBURN,
*Chairman Committee on Interstate and
Foreign Commerce, House of Representatives.*

EXHIBIT No. 1.

NOVEMBER 9, 1904.

DEAR SIR: You will recall the writer as being present when Messrs. Carstairs, Brice, yourself, and others in the office of Mr. Louis Gerstley had under discussion the matter of Doctor Wiley's attitude toward blended whiskies, and the necessity for a national blenders' association, etc.

On Monday last I met Doctor Wiley by appointment in reference to matters pertaining to our league. In the defense of his attitude, he mentioned to me, to be treated in confidence, that his contention of the misbranding of blended whiskies was an intended fraud was true; that he had on Sunday previous purchased in the city of New York the New York Sun and the New York Herald; "that there was advertised an analysis of a certain (well advertised) whisky from a noted chemist whom he respected and whom he knew to be a man of honor," and yet, the advertisement, so he said, was contrary to what he had found in the whisky analysis in his office in Washington. He stated further that he returned to Washington on Tuesday, the 1st instant, and went out and purchased two bottles of the whisky mentioned in the advertisement in different places in the city, and upon analysis found that the analysis advertised in the New York papers was nothing like the actual results found by his analysis. He further stated that he was debating the question of calling the attention of the post-office authorities to this method, and under the laws governing the post-office relation to fraud advertisements attempt to force the Post-Office Department into a fight against blended whiskies. He said "he believed that a different sample from that sold to the consumer had been submitted to the chemist for analysis."

I knew that Messrs. Alfred E. Norris & Co., of our city, was advertising an analysis of their whisky under Professor Sadtler. I immediately investigated, and have every reason to believe that the whisky that Doctor Wiley referred to is your whisky, and simply write this letter to put you in possession of the facts, as I think it would be my duty to do so as secretary of the Wholesale Liquor Dealers' League for any firm.

Yours, respectfully,

EDW. T. FLEMING,
Secretary.

MR. JACON ULMAN, *Baltimore, Md.*

EXHIBIT No. 2.

BALTIMORE, November 10, 1904.

DEAR SIR: The writer begs to acknowledge your favor of the 9th instant, and we thank you very much indeed for the information contained therein. We presume that the chemist you had an interview with must have referred to us, because we have no knowledge of any analysis of any other whisky than ours having been published in the New York papers recently, although the date mentioned (Oct. 30) does not correspond to the date upon which we published our analysis (Oct. 16). We

think it is due to not only ourselves, but also to the other dealers, to show that the conclusions arrived at in the matter mentioned by you are entirely wrong.

In the first place you state that the party said he believed that a different sample to that sold to the consumer had been submitted to the chemist for analysis. Now, if he will refer to our advertisement, which is a photographic copy of Lederle's letter to us, he will find it therein stated specifically that the whisky was purchased in the open market; and as he further states that he knows this chemist who made the analysis to be a man of honor he could not well believe that he would make a statement which was not true.

In addition to this, we wish to say that we did not designate where Lederle was to buy the whisky, nor did we inform him where he could buy it, nor do we know where he did buy it.

- We went to him asking that he should go into the open market and purchase some Wilson whisky, make an analysis of the same, and that we would publish it without any alteration whatever.

Further than this, we have not only Lederle's analysis but also the analyses of several other most prominent and reputable chemists, all of them conforming practically to Lederle.

In view of the above we are confident that if the analysis of the sample bought by your informant in Washington was nothing like the actual results in the analysis published by us it was because the whisky purchased was not Wilson whisky, but a substituted article.

In conclusion, in justice to us and to the rest of the trade, we think the gentleman referred to should be put in immediate possession of these facts, as, from the information contained in your letter, he is evidently laboring under a misapprehension as to how the wholesale liquor dealers of this country conduct their business.

Furthermore we will be pleased to meet him or any one else at any time to substantiate our assertions, or if he would prefer it would be only too pleased to have him come to our plant here in Baltimore, when we will open any and every barrel, door, and room for him that he may wish to see.

Yours, very truly,

THE WILSON DISTILLING COMPANY,
JACOB A. ULMAN, *Vice-President.*

E. T. FLEMING, *Philadelphia, Pa.*

EXHIBIT No. 3.

NOVEMBER 15, 1904.

MY DEAR SIR: Strange as it may seem, it is nevertheless the fact that the illustration you mentioned during our very pleasant conference in the office of Dr. Percefor Frazer, to demonstrate the fact of the kind of frauds being perpetrated upon the public which came under your observation, stuck to me. I could not choke it off. I felt that if such were the facts, as you stated them, the parties to such frauds should be exposed in order to protect the commercial reputation of honorable dealers. In this condition of mind I procured the New York papers in which you said you had seen the advertisement, and I found advertised in them two brands of whiskies which seemed to agree with your statement. One of the firms so advertising, the "Duffy Malt Whisky" people, I do not know at all.

The other advertisement (purporting to be an analysis of the Wilson whisky by Doctor Lederle) makes me assume that you referred to the Wilson Distilling Company. I could not conceive how the managers and owners of this company (the personnel of whom I have a slight acquaintance) could be guilty of so imposing upon a man with the reputation and standing of Doctor Lederle by having him analyze a sample of whisky and publish the result of his analysis over his signature, as an advertisement, purporting to give a chemical analysis of goods other than the sample analyzed and reported upon by Doctor Lederle.

I argued that if Doctor Wiley's conclusions were right, these people were guilty of fraud, and with the view of finding out their side, or what would be their defense under such a suspicion, I wrote to Mr. Jacob A. Ulman, vice-president of the Wilson Distilling Company, outlining your statements, and asking for information in order to know their side. I herewith inclose you copy of his reply.

If you deem it the right thing, as I do, I would reply to his letter giving him the full detail of our talk along this line. And, further, give him to understand that it

was Doctor Wiley to whom I referred. Of course, I assume in all of this that the advertisement which I refer to in this letter is the same as the advertisement read by you when in your city.

As heretofore, I desire to assure you that our people are perfectly willing to honestly assist you in your endeavor to expose and stop all genuine frauds.

In speaking to our larger dealers of your visit to this city and my pleasant conference with you, I was further urged by them to extend to you a cordial invitation to visit their blending rooms and manufacturing plants at any time you are in the city. Of course, I should be delighted to show you through the manufacturing plants. I am sure that you could avail yourself of much practical information, to the benefit of both the Government, the public, and the dealer.

Hoping for a reply at your convenience, I am, with very best wishes,

Yours, very truly,

EDW. T. FLEMING, *Secretary.*

DR. W. H. WILEY,
Chief Chemist Department of Agriculture.

EXHIBIT No. 4.

NOVEMBER 16, 1904.

DEAR MR. FLEMING: I have yours of the 15th instant, the contents of which I have carefully noted. I quoted from memory in regard to the advertisement respecting the analysis made by Doctor Lederle, and I may be wrong. I am now looking for a copy of the advertisement to refresh my memory. If I made a mistake in quoting it to you I, of course, shall hasten to correct it, as it is not my purpose to do anyone an injury. I should think the manufacturer of a brand of whisky so extensively advertised as that of Wilson would be careful that dealers were not imitating their goods right under their noses. The samples we obtained in Washington were purchased at two different places. I should think that Doctor Lederle would be in just as much danger of getting hold of the imitated article as we ourselves.

I thank you for the copy of the letter from the Wilson Distilling Company.

Very truly, yours,

H. W. WILEY, *Chief.*

MR. E. T. FLEMING,
Secretary Wholesale Liquor Dealers' League, Philadelphia, Pa.

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